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GLEANINGS IN BEE CULTURE

OCTOBER, 1919

EDITORIAL

IN THE JUST NEWS items, page 672, mention is made of the fact that I underwent



On the Job Again.

an operation for radical mastoid. While any physician would understand this, the average layman would, perhaps, have to be told that the surgeon chisels a hole thru the skull just back of the ear, after which he cleans out any diseased portion of the bone or tissue that may be left. This operation, which has been hanging over me for some years, was entirely successful. While I was on the operating-table for two hours, and under the anesthetic for four, it is now over with, and I see no reason why I should not live to be a hundred years old, as I am in perfect health otherwise.

I expect to be among my friends the beekeepers this fall and winter the same as usual, probably winding up in California during the coldest month of the year.

E. R. Root.

GLEANINGS HAS for some time been giving both the Government market reports



Producers to be Quoted.

and reports from the wholesalers. We are certain that our readers will be pleased to learn that we are now planning, with the co-operation of the beekeepers, to give also quotations from producers thruout the country. Reports from a few sections are given in this number, page 629; but we hope by next month to have a more complete report.



Yes, You Can Get Sugar.

But they should now cheer up, for they will find conditions not quite so bad as they deserve. In the first place, inquiry at the grocery or freight depot may result in purchase, at a reasonable price, of white granulated sugar that has been slightly damaged by rain, by being spilled on the floor, etc. A syrup made from such sugar will supply

the colonies with good winter stores. Those who can get white sugar should on no account use brown; for, altho colonies have been wintered successfully on the latter, it is not nearly so safe as the white.

And now we have good news for those who are unable to get even damaged sugar. The editor, feeling that something should be done immediately to supply the beekeepers with sugar, took up the matter with Dr. E. F. Phillips, who promised to do all in his power to obtain the much coveted sugar. The result of his efforts is before you in the form of the following telegram:

"Beekeepers unable to get granulated sugar to prevent starvation of bees should notify United States Sugar Equalization Board, 111 Wall St., New York, immediately, giving all necessary information. This Board will, if possible, arrange for proper distribution."

"HONEY FROM THE BEE direct to you! —sells the sweet stuff to Washingtonians



Selling Price Too Low.

for 17 cents a pound. How much do you pay?" This appears in the Washington Star for Sunday, Sept. 7. Is it any wonder that many who depend upon bees for a living, object to more small beekeepers entering the business when some of them show such utter ignorance of the cost of production and of bottling, and show not the slightest hesitation in spoiling the market for those whose very bread and butter depends upon their getting a fair return for their labor—a return that will enable them to purchase their daily requisites at the present high prices? On page 645 it will be noted that, according to Mr. Herisher, those who were getting from 9 to 12 cents a pound wholesale in 1912, should, in order to keep up with the 135 per cent increase in other commodities, now receive from 23 to 27 cents for extracted honey.

There is today absolutely no excuse for ignorance concerning the market. Either a bee journal or the Government reports would keep one better posted than this. A letter to the United States Department of Agriculture, Bureau of Markets, Washington, D. C., will bring the Government mar-

ket reports directly to one's door; or if one wishes to know prices during the interval between the semi-monthly reports, a telegram will give quick results.

Any beekeeper who learns of another retailing at so ridiculously low a price as 17 cents will doubtless find it quite worth his efforts to help place such a one in touch with the markets.



WE HAVE RECEIVED from the United States Department of Agriculture, Bureau of Crop Estimates, the September Monthly Crop Reporter. On page 92 is a column devoted to "honeybees and honey plants."



Honey Crop This Year Larger Than Last.

The report of the average amount of honey per colony produced by States and for the whole United States is very interesting and instructive. For the whole country it appears that the average yield per colony up to Sept. 1 was 42.6 per cent; 37 per cent for 1918; 35.9 for 1917, and 46.1 for 1916. The average beekeeper at first thought might think that the crop for the whole United States is less this year than last; but as one comes to analyze the report by States he will become convinced that it is right. Fortunately, the editor has an intimate knowledge, from private sources, of the production in some important bee States; and in every case, with the possible exception of one, the report from the Bureau of Crop Estimates by States agrees almost exactly with our own private estimates. For example, we made the statement some time ago that the clover yield for Ohio, Indiana, and Michigan would fall far short of that of last year. The Bureau of Crop Estimates shows for Ohio an average, per colony, of 24 pounds as against 42 for last year. For Indiana the figures stand 20 and 41; for Michigan, 29 and 54. Again, we stated that the clover crop for Wisconsin and Minnesota would be about double that of last year. The Government reports show Wisconsin with an average of 54 pounds for this year and last year an average of 26. Minnesota stands 64 and 32; Iowa, 67 and 30.

In most of the alfalfa-producing States, there is shown to be a slight gain over last year.

Among the Southern States, Texas leads off with an average of 63 pounds for this year as against 20 for last year; Louisiana, 40 and 25 respectively. Some of the other Southern States show a falling off, but they are not important honey-producing States.

With so many States showing a lead over last year in spite of the shortage in California, it is easy to see that the total crop for the entire United States is larger than last year. This accounts for the fact that the price of honey did not advance more sharply than it did.

In other respects the Government report shows that the condition of the colonies and

of the fall honey plants is much superior to last year.

In the meantime we observe that honey is now being exported to European countries, the bulk of it going to Austria-Hungary, Norway, and Turkey. If this keeps up it will have a tendency to counteract what might otherwise amount to a slump in prices, in view of the fact that the yield this year is larger than last year.

We have learned that the prospects for honey in California next season are unusually good. This view is based on the fact that the month of August was one of fogs. When this occurs it is said there will be plentiful rains, so necessary and important to the sages.



THE AVERAGE PERSON in the colder climates is apt to draw the conclusion that



Regional Differences in the Wintering Problem.

the beekeepers of the Southland or those in a semi-tropical climate have no wintering problem—that all they have to do is to see that the bees have plenty of stores, and then pay no further attention to them. While, of course, a large amount of natural stores is a prime requisite in semi-tropical wintering, there are other factors to be considered. Indeed, the editor is coming to believe that the wintering problem in the semi-tropics is really as great as, if not greater than, that in the cold, cold Northern States where snow and ice and zero weather prevail for months at a time. The beekeepers of California and the Southland might as well make up their minds to the fact that it is no small job to bring a good colony of bees thru from fall till the following spring. The principal danger is starvation. While it is probable that only a small percentage of the colonies actually starve to death, a very large percentage, because of a shortage of stores, do not breed up properly, with the result that said colonies will be too weak to take advantage of the first honey flow. This is particularly noticeable in the orange districts of California, where thousands and thousands of colonies range from two and three frame nuclei to four and five frame at the time the orange flow comes on, and the yield from the orange is very heavy some seasons. Unless there is a large force of bees of the right age to gather the crop the colony will dwindle rapidly. In the same way colonies will be below par at the time tupelo comes on in the Southland.

The editor is pretty well convinced that, while plenty of natural stores is a prime requisite in the semi-tropics, many beekeepers are making the mistake of not providing adequate windbreaks and suitable protection. One reason why bees consume enormously of their stores in the semi-tropics is because of a lack of protection. Too many times colonies are wintered in two-story

hives with the brood-nest in the bottom story. The heat generated by the colony of bees rises into the upper story where it can do little or no good. Either the lower story should be raised to the top or there should be folds of newspaper between the upper and lower stories with a hole to admit one or two bees at a time. The newspaper will confine the heat to the lower story, and at the same time leave available the stores in the upper story.

We are of the opinion, from experiments conducted in California, that two or three frame nuclei, and even five-frame nuclei, could be better confined down to the actual combs they occupy by putting folds of newspaper around the sides. As soon as the bees need more room they will eat away the paper and thus expand the cluster when the weather conditions are more favorable.

There are times when packing-cases might be used to advantage, even in the Southland, but as to just when and where, we are not now prepared to make a definite statement. We are thoroly convinced, however, that many beekeepers in the semi-tropics can well afford to confine their clusters down to the smallest cubic capacity during December and January when it is supposed there is no wintering problem.

While it is true that bees can fly out almost every day in many of our Southern States and California, this very fact is what causes the field bees to die off prematurely. The sun draws them out; they bring in a little pollen, and sometimes a little nectar. This stimulates brood-rearing so that in some localities the queen lays 11 months in the year. The result is that she is worn out at a time when she ought to lay heavily so that there will be plenty of young bees of the right age to gather nectar for the first real honey flow. The beekeepers of the cold, cold North, where snow and ice prevail during winter, have no problem of worn-out queens. The enforced rest of three or four months is quite in accordance with nature. As soon as winter begins to turn into spring the queen will begin to lay. She has had a long rest, and she is in good condition to do heavy duty, and she does it. The three or four months of enforced rest makes it possible for the beekeepers of the colder climates to get good service out of queens for one or two seasons. But the beekeeper in the Southland or California, whose queens lay 11 months in the year, is blessed (or, rather, cursed) with worn-out queens; and the only solution lies in requeening at least once a year; and it would be much better, in many cases, we venture to suggest, if all colonies were requeened in the fall, or very early in the spring. In some cases they should, perhaps, be requeened every six months.

The real wintering problem in the semi-tropics is worn-out queens — queens that can't lay when they ought to — and inability to get queens for love or money when they are most needed.

As the editor looked over some of those mountain-sides or hill-sides in California he wondered if it would not be possible to dig caves in the sides, and put the bees in these caves, shut them up in the dark, and hold them there for two months. The temperature of the earth in California, we should guess, is between 55 and 60 degrees. If ventilation could be supplied, the bees in such caves would winter nicely, and all brood-rearing would be suspended during the winter confinement. In other words, it might be possible, even in California, to stop brood-rearing and give the queen a rest, stop the awful decimation of bees flying out in the fields and dying, and last, but not least, stop the heavy wastage of stores that takes place when the bees can fly almost every day during the winter. Of course the thing has never been tried yet; but David Running, our greatest living authority on cellar wintering, gave it as his opinion that bees might be wintered in the Southland in caves or dugouts, saving the drain on the queen, drain on the colony strength, and the drain on the natural stores.



NOW WHEN THERE IS so slight a difference between the price of extracted and comb honey, it may



Too Few Comb-Honey Producers.

seem a rather strange time to urge the production of comb honey; but we believe that L. L. Andrews, page 664, is quite right; and that some other good beekeepers are also of the same opinion is shown by the fact that supply-dealers have noted in the sale of sections a marked increase over last year's sales. It is evident that many of the beekeepers are either going back to comb-honey production or else those now in the business are increasing their equipment.

Those skilled in comb-honey production are wise, we believe, in returning to it. Present prices can not be expected to hold indefinitely. Sooner or later honey will be selling much lower than now. As soon as this happens we may expect the same old difference in price between comb and extracted honey that held before the war.

This season has not been an unusually good one. Judging from the present condition of honey plants in many parts of the United States it seems quite likely that next season's crop will be a large one. It is also true that present prices have induced many more to take up beekeeping. Looking ahead, therefore, to next season, it seems not improbable that there may be a very large amount of extracted honey on the market, and but little comb. That there will be an over-production of extracted we hardly credit, and yet there may be an amount large enough to make it much more difficult for the producer to dispose of his crop. The comb-honey man, however, need have no fear along this line. For good comb honey there is always a ready market.

THE tendency nowadays is toward outdoor wintering; and undoubtedly this plan is better for most localities where there is more or less open winter

weather with the temperature above freezing perhaps 10 days in every month during the coldest months. Where it remains cold, below freezing, seldom above, and at times ranges around the zero mark, outdoor wintering can be practiced provided the bees are warmly packed. And even where they are unpacked, in localities where there are deep snows thruout the coldest part of the winter they will often winter well; but it is advisable to have some packing even then. In localities where the temperature drops to zero, or where it remains severely cold during two or three months of the winter, indoor wintering is preferable; but the cellars must be properly constructed. Any indoor wintering will be poor where ventilation is poor. The temperature of a bee-cellar should be between 40 and 55 degrees and ought not to vary but a few degrees, preferably not more than five. Any bee-repository where the temperature can not be kept above 40 degrees at the lowest and below 60 at the highest should not be used unless there is plenty of ventilation. Often this can not be secured without the use of an electric fan, and that, of course, requires electricity in the house or repository.

As a general thing it may be said that a bee-cellar under a house with a furnace to heat the rooms above will often give good results; but the bee-room should be entirely shut off by a wall or partition from the furnace-room. During a part of the winter the door between may be left ajar for ventilation, and for raising the temperature provided the mercury shows lower than 40 degrees. An under-a-house bee-repository is usually not as good a place for wintering as a specially constructed cellar—that is, one wholly underground with a roof of not less than three feet of earth, or a cellar in a sidehill with at least four feet of embankment on all exposed sides and on top. Where the soil is pervious to water, the dirt on top should be covered with a roof. Where it is heavy yellow clay, well packed by a team of horses driven over it, a roof may not be needed. The point is, that the top covering should be **dry**. If it becomes soggy and damp from the fall rains, and then freezes, it is almost worse than nothing.

In our issue for September, 1918, pages 524 to 529 inclusive, I gave illustrations and specifications of cellars that have given excellent results. All of them were constructed according to the specifications given above.

Dear old Mother Earth is a great reser-

HOW TO BUILD A BEE-CELLAR

When to Winter Indoors and When Outdoors. Mother Earth as a Radiator of Heat and Cold for Cellars

By E. R. Root

order to get as much exposure of the ground temperature as possible. A cellar built square will have less wall and ceiling surface than one that is oblong. The temperature of Mother Earth runs all the way from 40 to 55, depending on the locality. During midwinter I have taken the temperature of the water in wells in our locality, and I have done this during summer. I have found that the variation between winter and summer is very slight—not more than two degrees. But it should be remembered that ordinary wells are open so that the surface temperature may influence the water to a slight degree. If the well is covered, the variation between winter and summer temperature of Mother Earth, or, more exactly speaking, of the water in the well, will be very slight.

In view of the fact that the ground within 10 feet of the surface will remain almost constant during winter (about 45 in our locality), the reader will see the great importance of having as much ground exposure or wall exposure as possible. The late G. M. Doolittle, some 30 years ago; built a cellar on exactly the lines that I am recommending today. On page 528, September, 1918 Gleanings, was given a pen drawing of that cellar in which Mr. Doolittle wintered his bees uniformly for a long period of years. As there shown, Mr. Doolittle long ago advocated a cellar quite similar to the one here described. He believed the cellar ceiling should be below the frost-line, and that during winter the temperature should be 45 degrees with a very moderate amount of ventilation. The variation in temperature in his cellar during the entire winter did not exceed two degrees. The hole in his ventilator was 6 x 8. Back of his cellar he had a fence built so that the driving snows would cover the roof, acting as a warm blanket. I do not remember the exact dimensions of this cellar; but it was not more than 10 feet wide, I should say, and perhaps 50 feet long. This would give a large exposure of wall tempered by the earth. Of course, in the average soil a wall of some kind would have practically the temperature of the earth back of it. It costs more to build an oblong cellar than a square one for a given capacity of cubic feet; but the advantage of having a more uniform temperature will be apparent.

Construction of Our Cellar.

Before building our cellar, we visited some of the best bee-cellars in the country,

voir of heat. Relatively speaking, the earth is warm if we get below the frost - line. An underground bee - repository should be long and narrow in

and then attempted to combine what seemed to us the best points of all. For a site we chose a railroad embankment at the west end of our warehouse. The cellar was built late in the fall. It was made 12 feet wide by 60 feet long. This has a capacity of from 400 to 600 colonies. The walls (A) are of solid concrete ten inches thick, reinforced with $\frac{3}{8}$ -inch steel bars (B) running horizontally and vertically, forming 18-inch squares. The ceiling (C) is solid concrete 12 inches thick in the center, sloping to 10 inches thick at each side, reinforced with half-inch steel bars (D) running crosswise every 4 inches, and $\frac{3}{8}$ -inch bars (B) lengthwise every 12 inches.

The cement floor (E), which is three inches thick, is drained by means of four-inch tiles (F) running lengthwise next to the walls and a foot below the floor, the tile being covered with coarse cinders (G) to the level of the floor.

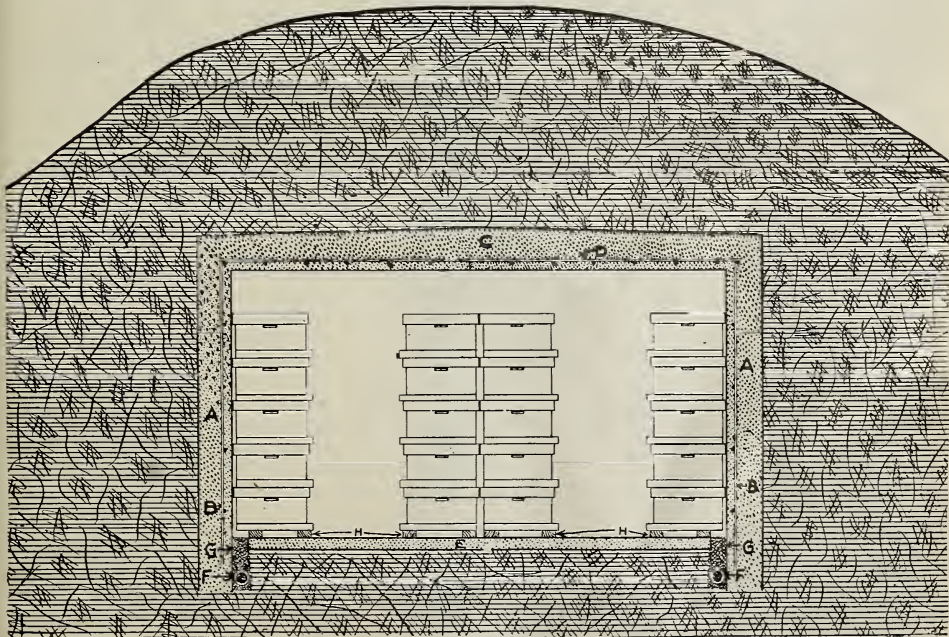
After the roof had hardened, yellow clay was scraped over the top. The clay was left five feet deep in the center, and sloped to three feet deep directly over the side walls. We had intended thoroughly packing the clay over the roof, but before the work of our cellar was finished a hard rain set in and the clay was completely soaked. This delayed the work until almost time for putting in the bees. Then the ground froze before the work could be finished; and when it finally thawed, and the work was completed, the dirt was too wet, and, of course, it

would not dry out as it should. It was, therefore, necessary to install an electric fan and start coke fires in several parts of the cellar. These were kept running day and night until the cellar was dry enough to remove the forms and move in the bees. Had the cellar been built earlier all this trouble would have been avoided.

This cellar opened into the basement room of our large warehouse. In the door was an electric fan and an electric heater. At the other end of the cellar was an eight-inch-tile chimney up thru the roof and thru the clay embankment on top. The object of the electric fan was to force ventilation from the large outer room of the warehouse where the air had been tempered before it was passed into the cellar. This air, forced by the electric fan, would pass directly thru the cellar lengthwise and escape thru the ventilating chimney at the extreme end before mentioned.

The boxing of the ventilating chimney from the ceiling to the floor was an important feature, as it shut out the light and enabled us to draw the foul air from floor or ceiling. The air from the cellar enters the chimney thru two small doors opening on opposite sides of the ventilator, one of which (A) is shown in the illustration. A vertical board (B) extending from the floor to about two inches above the doors prevents the light in the ventilator from shining thru the doors into the cellar.

If it is desired to take the warm foul air



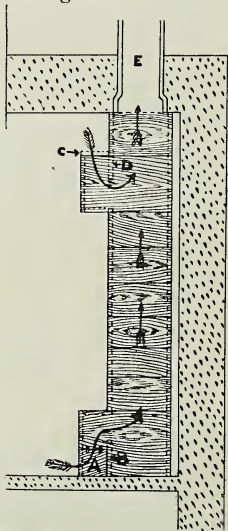
Cross-section of Root's bee-cellar showing the two aisles and four long rows of hives. Two-by-fours (H) are placed on the cellar bottom as supports for the hives. The floor, walls, and ceiling of the cellar are of solid concrete, the ceiling and walls being reinforced with steel bars (B) and (D). The drainage-tile (F) is shown covered with cinders (G).

from the top of the cellar, the door (A) is closed, and the board (C) of the top opening is lifted off, allowing the air to pass out of the chimney from the top of the cellar. A board (D) extending downward excludes the light. An eight-inch tile (E) joins the top of the wooden shaft and extends about a foot above the ground.

Covering the back of the door and extending a short distance above it is a box $9\frac{1}{2}$ inches in depth. On a shelf near the top of the box is an electric heater for forcing warm air into the cellar, but in actual practice this heater was not found necessary. As a matter of fact we found the heat did more harm than good. Near the middle of the box is a shelf for holding the electric fan. On the opposite side of the door is a similar shelf. Immediately above the shelves is a round 17-inch opening thru the cellar door. Near the fan is a door in the box, making easy the removal of the fan from one side of the door to the other. By placing the fan on the shelf inside the door, with the fan facing the opening in the cellar door, the foul air is rapidly drawn out of the cellar.

When placed on the opposite side of the door the tempered air from the warehouse may be drawn into the cellar. Being able to use the same fan in this way also saves buying a more expensive suction fan. A hinged door at the bottom of the air-chamber keeps the cold air next to the floor of the warehouse from being drawn into the bee-cellar when only warm air is desired.

As previously mentioned we found the heater unnecessary. In fact, Mr. Pritchard, who was in charge, disconnected the heat-wires, and since then we used only the electric fan. He kept this fan going almost all winter pumping air from the large basement thru the cellar. The daily variation was less than one degree and the extreme variation about five degrees. The only time there was any considerable variation was when somebody turned on the heat. Then the temperature went up five degrees.



Ventilating chimney at rear of cellar. Air leaves the cellar thru the door (A), passing over the top of board (B), thru the wooden shaft and tile (E). When desired, door (A) is closed, board (C) removed, and air from the top of the cellar allowed to pass thru the upper opening under the lower edge of board (D), and up thru the chimney.

Cellar Gave Good Results.

Mr. Pritchard reports that the bees in medium and strong colonies wintered nicely. Everything came out according to our expectations except the two-frame nuclei, each having a queen. These would have wintered all right had it not been for the fact that they were not put into the cellar until after a zero freeze. Mr. Pritchard says that he knows that these nuclei did not recover from that severe shock. The severe freeze started breeding that ended disastrously for some.

Importance of Ventilation.

Mr. Pritchard says that the tests last winter showed that ventilation is all-important. With our electric fan it was possible for us to regulate this to a nicety.

This brings up the question, if ventilation is so essential, how about the other fellow who has no electricity on his premises? If the bees are wintered in the house cellar, and they remain next to the furnace, the room can be ventilated by leaving the door into the furnace-room slightly ajar, or by opening a window or two in the bee-room at night, or both. If the bee-cellar is at an outyard constructed on the lines already described, a subearth ventilator may be used in connection with a chimney ventilator thru the roof at one end of the cellar. During the coldest of the weather less ventilation will be required; and it may be necessary to close down the roof ventilator somewhat. During warmer weather, or during a warm winter especially, bees will require more ventilation.

David Running of Filion, Mich., an authority on cellar wintering, says less ventilation will be needed when the temperature can be held around from 43 to 45. Mr. Doolittle used to say the same thing. For this reason a good cellar should have a relatively large amount of wall, ceiling, and floor exposure backed by Mother Earth, the great heat-stabilizer.

I doubt if an electric fan will be needed with an ordinary outdoor cellar when the entrance leads outdoors. When, however, it communicates with a general basement such as ours, where the air is warmed, an electric fan is needed.

Summary.

If you are wintering well outdoors, do not change over to cellar wintering, even tho you might thereby save a half of your stores. If the winter stores are in any way inferior, I should much prefer to have the bees outdoors. Cellar wintering may save considerable stores, and may be used to advantage where the climate is very severe. If there are deep snows, three or four feet or more, or enough to cover the winter packing-cases, and if it remains so, and the snow does not thaw and freeze around the entrance, outdoor wintering is preferable. With very deep snow, bees can sometimes be wintered in single-walled hives; but even if they can be so wintered, that is not proof that double walls would not save a lot of bees and stores.

THE genus *Rubus* of the rose family contains the raspberries and blackberries. There are many species widely distributed in the North Temperate Zone. In the raspberries the fruit falls away easily from the dryish cone-like receptacle; in the blackberries the fruit does not separate from the juicy receptacle, but both come away from the calyx together.

The value of the blackberry (*Rubus alpehniensis*) as a honey plant varies widely in different parts of North America. In New England the wild species are seldom sufficiently common to be of much importance to bee culture; nor do the cultivated varieties yield nectar freely. As visitors the solitary bees far outnumber the honeybees, which manifest a preference for collecting pollen rather than the scanty supply of nectar. In New York, New Jersey, and Pennsylvania little mention is made by beekeepers of the blackberry. In Tennessee, Buchanan says that the blackberries yield little or no nectar, and while plentiful seem to be almost entirely neglected by honeybees.

In Michigan, after the hardwood forest of beech and maple has been cut for lumber, there speedily springs up a luxuriant growth of brambles, many acres being covered with raspberries and blackberries; but while the former is an excellent honey plant, the latter offers little attraction to the beekeeper and is not even mentioned in the list of honey plants of this State published in *Gleanings* by Ira D. Bartlett, August 1, 1914. In northern Michigan chief reliance is placed on the raspberry, the clovers, the milkweed, and the willow-herb. Again, E. D. Townsend in describing the honey plants of Michigan in *Gleanings* for Oct. 1, 1908, says that after the willow-herb blackberry brush grows up, and later white clover comes in; but the blackberry never produces honey, for the bees rarely notice it.

If the blackberry fails the beekeeper in Michigan, it might readily be concluded that it is of no value anywhere. Here the conditions under which it grows appear to be almost ideal, and, if it is a failure in this State, its omission from the list of honey plants would seem to be warranted; but strangely enough in other

BLACKBERRY as a HONEY PLANT

Yields Considerable Nectar in Georgia, California, and Other Sections

By John H. Lovell

sections it stands in the front ranks of the honey flora. In northern Georgia, at Bogart, according to Frank C. Pellett, the principal crop comes

from the wild blackberries, which are abundant in the woods. The blackberry flow is at its best about the middle of April, and the average yield is about 25 pounds per colony.

In California the blackberry is of even greater value. In a letter to the writer M. C. Richter writes that it is of immense value. California botanists now call the blackberry the dewberry (see Bailey's *Cyclopedia of Horticulture*), and in my revised list of "Honey Plants of California" I mention *Rubus baileyanus* or American dewberry, and *Rubus vitifolius*, or California dewberry. Both of these plants produce sur-



California blackberry usually called dewberry.



Ordinary blackberry which yields nectar in Georgia and certain other sections.

plus crops. The honey is light amber and has an excellent flavor. In former years Mr. Lynch of Stockton produced honey from the California dewberry. While I was engaged in honey production in Chile, I produced one spring a small surplus from the wild dewberry of that country.

The English writer Dobbie in his book, "Bee Pasturage," says of the blackberry, honey value 70 per cent; pollen value 30 per cent. The same writer places the honey value of dandelion at 30 per cent, pollen value 40 per cent; from which it appears that he regards the blackberry as much the more valuable.

The flowers of the blackberry are larger

than those of the raspberry, and the petals spread out flat affording a convenient landing place for insects. The stamens also bend away from the center, and as the outer anthers dehisce first, the flowers are usually cross-pollinated before the inner anthers, which may effect self-pollination, have opened. The stigmas may mature slightly before the anthers. The nectar is secreted by a fleshy ring inside of the stamens, and as it can be more easily obtained than that of the raspberry the flowers are visited by a larger and more varied company of insects. More than 100 species have been collected on the inflorescence.

J. H. Lovell.

Waldoboro, Maine.



MY actual work with the bees dates from the spring of 1885. That season was an extra - good one in Vermont, giving us a bountiful yield from basswood, which has now become very scarce. I never owned a large apiary, altho I have cared for many, and worked two seasons under A. E. Manum where the business was conducted on a large scale.

In 1910 my apiary had increased so that it was not advisable to keep it on my small city lot, it being too close to my

A PRACTICAL APIARY HOUSE

Construction of Apiary House and Management of Bees Therein

By **H. William Scott**

neighbors. My profession does not permit of regular time being spent with the bees, altho I can usually arrange enough time to care for them. They

must be some distance out of the city. No convenient house nor shed was available at the chosen site, which I had selected at the bottom of a basin where two rivers come together. I must have some place in which to store appliances. I must do the work with them, rain or shine. I must have things arranged so I could lock all up and not be

afraid that they would be meddled with. I leased a small plot upon a hillside rising sharply on the northwest and west, protected by trees on the west and south, and open only on the east, with a small brook running along one side, which furnishes water the greater part of the year.

Construction of Apiary House.

Here I erected my building, 8 feet wide, 24 long, 11 feet in front, and 8 high in back. It was built of No. 2 spruce lumber, boards planed on two sides and matched, the 2 by 4's planed on four sides. This gives a smooth surface inside and outside. The outside is well painted, all in white, except that the front is painted in sections in red, white, and blue—to help the bees in marking their locations. The roof is covered with two-ply rubberoid roofing-paper kept painted with roofing-paint. The studs are

bevel is $1\frac{1}{2}$ inches. On this is placed the floor for the hives, having an opening, boards beveled to match, which opening is 8 inches in from the inside of the wall boarding.

The entrance thru the wall boarding is $\frac{7}{8}$ by 15 inches. The passageway from the outer to the inner entrance is about 9 inches in length, and the inner end is 2 inches higher than the outer. The hives are placed on this floor within 4 inches of the wall, and are thus 4 inches apart. The frames are parallel with the wall and entrance for ease in handling. The entrances are wide open during hot weather, and at other periods are closed by means of an entrance-guard which is a board 2 inches wide and 18 long, having a $\frac{3}{8}$ by 8-inch opening on one edge and a $\frac{3}{8}$ by 2-inch opening on the other edge. The guard is placed over the outer entrance



Apiary house of H. William Scott. The front is painted in sections in red, white, and blue, to help the bees in marking their location. These colors produce a strange effect in the picture, misleading one to believe the building rather pretentious with eight doors on the front, where, as a matter of fact, there is only a plain wall with no doors in front.

set on the floor, two feet on centers. The shelf is 4 feet up from the floor, and should be built 20 inches wide, with an extension-back for winter to hold the packing. On the floor along the side wall pieces of $\frac{7}{8}$ board 3 by 20 are placed on each side of each stud. On the floor I put a strip of one-ply rubberoid roofing 20 inches wide. At the back a piece of board is laid so as to make the width of the platform 2 feet; then between the two short pieces, laid from front to back, is put a board beveled so that the

by being slid down back of two finishing nails driven part way into the alighting-board. This alighting-board is about 15 inches wide, and runs the whole length of the building, sloping from the entrance about 3 inches in the 15. Very little wind enters this entrance, and storms never. I found it necessary to nail the entrance-guards on the lower alighting-board to prevent skunks from pulling them off.

The windows are a single pane of 12 by 16 glass, sliding up or down on the wall, and

are held by slats rabbeted 18 by $\frac{1}{4}$. Thru these rabbets are two sets of small holes in which nails are placed to hold the glass at the desired height, either to close the opening entirely or to lower the glass, leaving an opening at the top for the escape of bees.

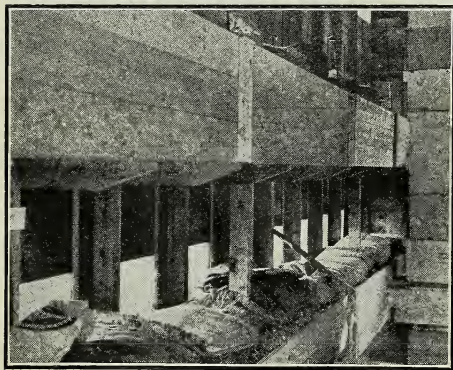
On the outside each window is covered with wire cloth extending about 3 inches above the window, and held off from the building $\frac{1}{4}$ inch to allow the escape of bees.

There are, also, three small openings, 5 by 20, near the roof. These are covered with wire cloth in the same manner, permitting bees, smoke, and foul air to escape readily. These openings are never closed. The building is now on 6 by 6 sills, a small dugout underneath, two trapdoors in the floor, with a screened window in the south end underneath, and a tile-drain pipe at the lowest point to take out any surface water.

Colonies are on the east side and south end only, the other side being used for workshop and storage. The honey-extractor is set on this floor just behind the pile of supers at the right in the photo, and honey runs into sap-tubs under the floor thru fine wire-cloth strainers, and is handled in these sixteen-quart tin sap-tubs until melted for sale. The building at eight feet is not wide enough for convenience.

Method of Packing.

The photo of the inside shows the method of packing. Two frames are taken from the ten-frame brood-nest, Hoffman frames, the other eight being at the back. A regular-



Inside view of apiary house, showing bees packed for winter.

sized chaff division-board is slid down in front, care being taken that it does not cover the entrance. The three middle combs are slightly separated so as to widen the spaces between them. Over the frames are placed two short sticks about one inch square, or, preferably, a common fifty-cigar box has its cover nailed on, and is then sawed thru the center lengthwise so as to form two shallow boxes, one of which is turned over each colony. Over this is spread a piece of carpet or burlap, and over this, at the back, is put a piece of enamel or oil-

cloth, using care that there be a one-inch space of the burlap toward the frames from the outside that is not covered by the oil-cloth, this space being directly over the entrance. The purpose of this space is to permit a freer avenue for ventilation **directly over the entrance**. This arrangement leaves no possibility of draft thru the cluster of bees, yet permits the escape of all moisture upward into the packing at the front, where it is readily dried by the sun shining thru the window. Over the top is then spread some planer shavings, pressed down closely in the corners. Next is put on the sack of shavings, about five or six inches thick. There is four inches of packing on all four sides besides the two-inch chaff division-board at the front. The inside-view photo shows the three six-inch boards in place holding the packing. I used to unpack for the summer; but now I take off only the top-board, leaving the rest of the packing during the summer.

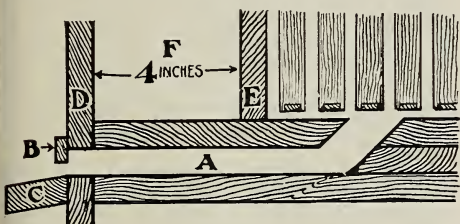
My Management.

And now we come to the management. I plan to begin in July, for that is the time to see that all colonies have a good queen so as to insure the hatching of a large force of bees from August 20 to October 1. I provide each colony with 28 to 33 pounds of stores (I prefer to have about one-half full of honey and then give, for the other half of their supply, sugar syrup fed early in October, which will then be placed where it will be used for winter consumption. When feeding I use two-quart glass jars on the pepper-box principle. Next I pack all as above described; lock the door and the gate, and leave until the following April or first of May. Very little can be done here in April most years—merely looking after accidents, and possibly contracting some brood-chambers where the colony appears to be small; but I plan to keep all warm. The first time any examination is made, the oil-cloth is spread over the entire top, and sometimes newspapers are added. We can now hold **all the heat**, as the moisture will take care of itself when bees can fly frequently.

In May we see that each colony has plenty of feed; and as warmer weather advances we enlarge the brood-nest, removing the chaff division-board and returning the frames taken out. Later we add a half-depth super as the strength of the colony increases; and as we work for extracted honey I frequently help out the weaker colonies with hatching brood from the strongest. This would not do so well if I were working for comb honey. All queens are clipped this month. As soon as the colonies can care for it, and the weather has become warm, full-depth supers are added, some brood is placed therein above the center of the brood-nest, and the queen allowed full sway of the two. Just before the white-honey flow I do not wish for much honey in the hive, and usually am not bothered with it. I work to have all winter stores cleaned up,

as I do not want any of the sugar stores to get into the extractor.

As soon as the white-honey flow begins (and ours is from raspberries) I put the queens all below the excluders, at this time putting three to five frames of **unsealed brood** above. Why unsealed? Because I am restricting the queen to **one** chamber. Sealed brood will hatch sooner; and with three to five empty combs, and the others



Entrance passageway is $\frac{7}{8}$ inch at A and $1\frac{1}{2}$ inches at B. The outside entrance is contracted to $\frac{3}{8}$ inch by 2 inches in winter. C is front wall of brood-chamber and D, front wall of building. E is sloping alighting-board.

mostly of sealed brood, the queen will not be restricted in her laying operations for some time, and swarming will be less likely to occur. I use eight frames in my supers, and there will be plenty of room for the storing of honey above; but if there should be a sudden heavy early flow I shall know it from my scale hive at once and can easily add more room where needed. Swarming? Yes, I have some. I am also four miles away, and do not have any one to watch for swarms either. I would if I could afford it; but why spend more for labor than the worth of the bees? I keep close watch of the condition of the colonies from June 15 to August 15—that is, as closely as I can. If a colony swarms I sometimes cut out all cells and sometimes try other plans. Usually I cut out all cells; and after eight

or ten days I return their own queen if I have preserved her; otherwise I give a young laying queen. It is not of much consequence to have queens laying between June 15 and August 1 here. There is very little honey gathered, as a rule, between August 10 and September 10, altho some years when the weather is just right we have a flow in September from asters.

Why I Like a House Apiary.

After seven years' use of the house I like it more and more. I have 40 colonies at this yard—all I want here—28 in the house and 12 outside in double-walled hives. I have never been able to see any preference as to the care or results. I can go to work whenever I can go to the yard; wind, rain, or hot sunshine does not stop all of my work. Everything is under cover. Robbers do not bother. No pestering, ugly bees are following one around. Brood is not so quickly chilled. No carrying long distances. All is secure from mauraunders. I believe that such a building, where slight protection is needed, as in some of the south-central States, would be the ideal arrangement. It would shelter from the hot sun, yet the open windows would give ventilation sufficient so that it would always be comfortable to work. The handling of honey in the house is easy, the work on the second shelf must be done from the stepladder. I have never had any difficulty with drifting of bees, but have had some trouble in getting young queens mated, and for that I rely on nuclei. As to the cost, it is small. The building is so plain that it could even all be cut out at a factory, and almost any beekeeper could erect it himself. I planned to make it simple yet good. It had to be bee-tight, which was accomplished by the use of good lumber finished when dry. Such a building all erected ought not to cost much more than double-walled hives.

Barre, Vt.

FIELD meets of beekeepers have now come to be quite the fashion, and a good fashion it is. I wish it were possible to attend all of them. I would

go to many more, if some scheme could be devised by which they could be arranged on a consecutive schedule. This would make it possible for Dr. Phillips and his staff of speakers to take in more of them than they can now do, on the present hit-and-miss plan. I offer the suggestion that Dr. Phillips be asked months ahead to arrange a schedule of dates for all the associations that contemplate holding field meets. I

SOME IMPORTANT FIELD MEETS

*A Few Field Meets which the
Editor has had the Pleasure of
Attending this Summer*

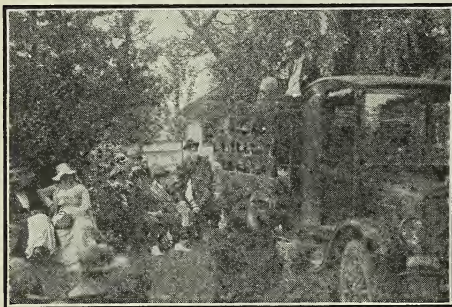
By E. R. Root

have been able to attend only a few. The first of the season was in Massachusetts.

On July 26 I attended a meet of the Eastern Massachusetts

Society of Beekeepers held at the home of Charles I. C. Mallory, Worcester Boulevard, Boston; and considering the threatening weather, dark clouds, and smart dashes of rain, there was a good attendance. The principal speakers were Dr. Burton N. Gates, just returned from Canada, but now of Worcester, Mass.; Arthur C. Miller, Providence, R. I.; F. W. Frisbee, North Andover, Mass., and E. R. Root of Medina.

Dr. Gates, formerly Professor of Bee Culture at the Amherst Agricultural College, had severed his connection there and gone to Canada to fill a like position. Another call brought him back home, but not into bees. He said with some regret that he had no bees and might never again give any attention to bee culture. This will be regret-



Kenneth Hawkins, formerly of the Bureau of Entomology, Washington, D. C., but now of the G. B. Lewis Co., addressing the big New York field meet on Aug. 1, 1919.

ted by Dr. Gates' friends, as he was not only one of the leading experts in apiculture but one who was able to impart to others what he knew. His many students all over the country testify to the excellent work that he did.

Arthur C. Miller spoke on the use of large hives and how to use a bee-smoker. Paper, he said, is not good to use to ignite fuel. Loose wood shavings from a hand plane are the best. When thru with the smoker he stops it up with a cork, and then it goes out. As Mr. Miller's views on large hives are so well known we will not repeat them here.

Mr. Frisbee told how the bees in Massachusetts were killed by sprays that are designed to destroy the gypsy moth that still threatens the destruction of shade trees. He threw out the suggestion that the State use repellents in their poisonous sprays—repellent to bees but not repellent to the gypsy moth. This, he was sure, would eliminate the heavy losses of bees in some sections.

The largest field meet that was ever held in the United States except the one in Jenkintown, near Philadelphia, in 1906, was held on August 1 at Newark, N. Y., at the home of Deroy Taylor. The number of ice-cream cones handed out indicated there were between 500 and 600 beekeepers present, many of whom had apiaries running all the way from 300 to 1,000 colonies.

The president, O. L. Hershiser, delivered an interesting address on the price of honey and the price of supplies. Among other things he said:

"Since 1912 the values of cattle, sheep, hogs, corn, oats, clover seed, raw sugar, beans, butter, cheese, eggs, chickens, pota-

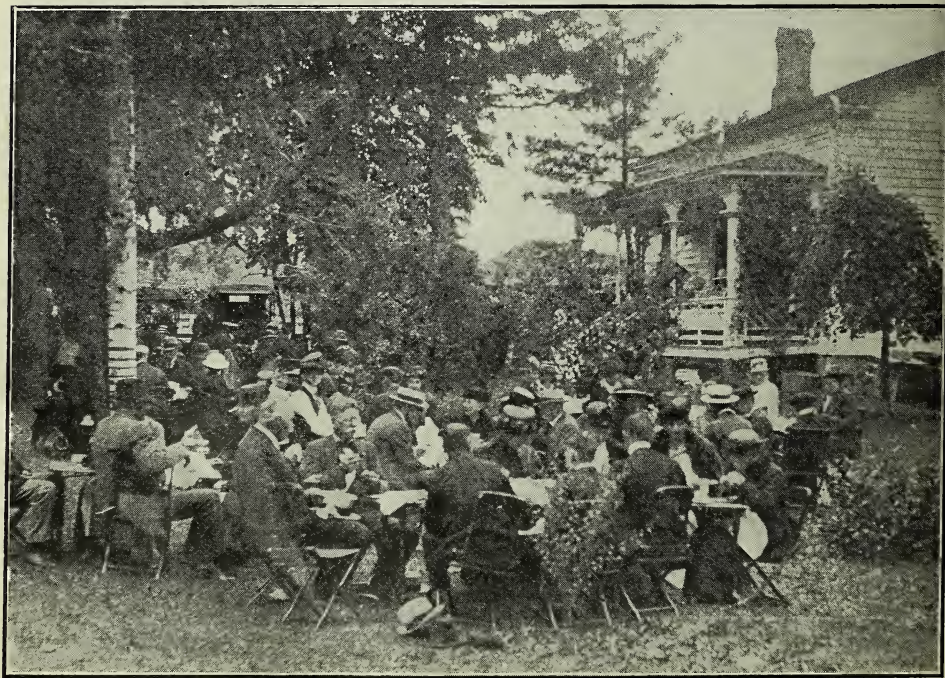


Fig. 2.—Eating honey ice cream at the big field meet of beekeepers held at the home of Deroy Taylor. Newark, N. Y., on Aug. 1.

atoes, maple syrup, cotton, and flour have advanced an average of 135 per cent and these 16 representative products are a fair guide as to the increased value and cost of nearly every thing we use.

"In 1912 the best extracted honey was quoted wholesale at from 9 to 12 cents per pound, and comb honey at 15 to 20 cents, or an average of about 10 and 17 cents respectively; and it is natural and logical that these 1912 values in honey should be increased to conform to the values of all other necessities. An advance of 135 per cent on the 1912 values of honey is, in fact, necessary to the honey-producer in order that he may continue his standard of living as it was some five years ago, which would bring the wholesale prices of extracted honey up to 23 to 27 cents per pound and of comb honey up to 40 to 45 cents for the best fancy grades.

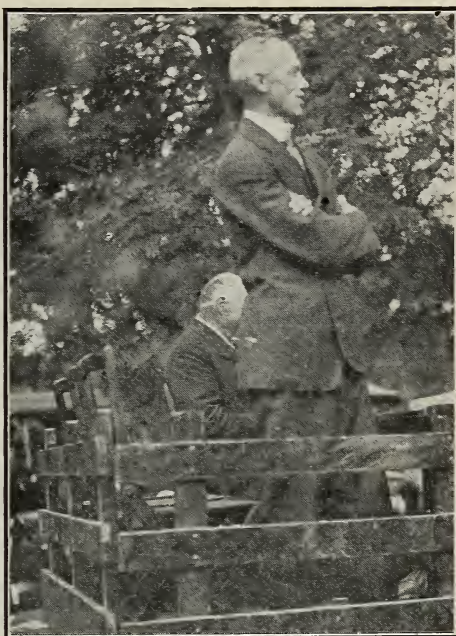
"Notwithstanding comparisons are said to be odious, I wish to refer to the comparative prices of beekeepers' supplies for the years 1912 and 1919. By selecting nine represen-



Tent used at beekeepers' chautauqua held at Madison, Wis.

tative objects of beekeepers' supplies, viz.: One-story hives in lots of 10, bodies in lots of 10, both 10-frame size, sections, smokers, 4 frame automatic honey-extractors, medium brood foundation, honey-knives, silk bee-veils, and 5-gallon tin cans, it is found that the average advance has been 84 per cent. When this is compared with the advance of 135 per cent, as shown in the 16 representative commodities before mentioned, I am impressed with the belief that we are getting our beekeepers' supplies at a very reasonable rate, and I confess some surprise at what I discovered to be the facts."

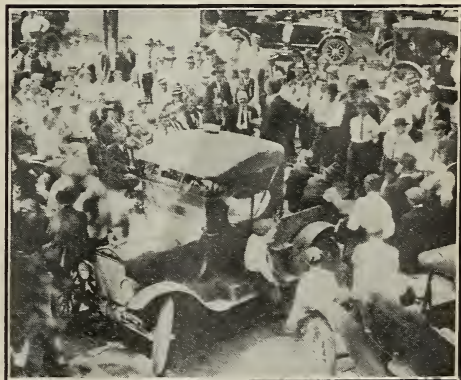
Mr. Hershiser was followed by Kenneth Hawkins, lately of the Bureau of Entomology, but now with the G. B. Lewis Co., Watertown, Wis. He spoke of the value of protection and good colonies. He emphasized particularly the importance of better beekeeping. Mr. Hawkins was followed by Geo. H. Rea, E. R. Root of Medina, H. L. Case, S. D. House, and others.



Geo. H. Rea, bee extension man, addressing the beekeepers at the annual field meet at Newark, N. Y.

An effort was made looking toward an organization similar to the Exchange of California, thru which its members could not only sell their honey in a co-operative way but also buy their supplies. A committee was appointed to report at a later time.

One feature of the day was a picnic dinner. The beekeepers formed themselves into groups or families, each furnishing their own lunch. The Taylor Co. presented the crowd with some ice cream of extra-fine quality. Finally the lunchers began to ask Mr. Taylor what made that ice cream so nice. He answered in one word—honey.



B. F. Kindig addressing the Ohio field meet at Delphos, O.



Pres. O. L. Hershiser addressing the New York State field meet of beekeepers at Newark, N. Y., on the cost of supplies. He shows that the average advance in beekeepers' supplies has been 84 per cent while that of other commodities has been 135 per cent.

The day was just right—not too warm nor yet too cool.

There is no more enthusiastic bunch of beekeepers than those in New York. In spite of bee disease, unless we except southern California, Ontario, and Michigan, there are more beekeepers to the square mile—yes, more beekeepers, if we leave out the qualifying adjective “big,” than in any other State in the Union.

On Aug. 9 we attended another field meet at the home of Miss Josephine Morse, South Lancaster, Mass. Dr. Gates was unable to be present, on account of another meeting, and therefore E. R. Root was given the “floor” for the entire afternoon. During the afternoon a real old-fashioned swarm came out from one of Miss Morse's hives, and was making for one of the tall trees in the good old orthodox fashion. I did not stay to see Miss Morse get it down.

A series of field meets or, rather, beekeepers' Chautauqua, was held at Madison, Wis., from Aug. 18 to 23. Dr. E. F. Phillips and G. S. Demuth, of the Bureau of Entomology, were the principal speakers. E. R. Root was present on the 20th and 21st, delivering a couple of addresses. The attendance (something like 160) would have been more than doubled had it not been for a mistake in an announcement in three of the bee journals—*Gleanings*, the *American Bee Journal*, and the *Domestic Beekeeper*—

stating that the Chautauqua would be held during the week of Aug. 25 to 30.

Prof. H. F. Wilson of the Department of Economics and Entomologist of the University of Wisconsin, was the man in charge of the Chautauqua—a man, apparently, who left no stone unturned to make this a big week.

Dr. Phillips and his class of speakers are doing a world of good among the beekeepers in the matter of emphasizing the importance of better beekeeping—first, good wintering, and then strong colonies of young bees in time for the harvest. They are attempting to clear up the confusion that exists in reference to the two diseases, American and European foul brood. It is to be hoped they can extend their meets over the country generally.

Another interesting field meet was held near Belleville, Mich., on Aug. 22. This was held at the beautiful summer resort of A. Suterka. Mr. S. has dammed up the river near his place, put in a picturesque water-wheel to run a gristmill, and on the banks of this stream he has put up an attractive bathing-house, and near this, under the shade of a large tree, was held the field meet. The speakers of the day were B. F. Kindig, State Apiarist; and E. R. Root, editor of *Gleanings*; F. R. Osborn, of Milford, and others. Mr. Suterka is not only an enthusiastic beekeeper, but a breeder of poultry.

Like A. I. Root he believes in utilizing the forces of nature, using not only wind power but water also. A mere description can give but a faint idea of the beauty of the place. It is rather hard to get to, but well worth while after one gets there.

B. F. Kindig in his address showed that the beekeepers of Michigan in the fight on bee diseases had many times been treating for American when they really had European foul brood. He went on to state there is a malignant stage of European that looks very much like the American type, and that

it is important that the beekeeper know what he is treating. The bacteriological department of the college at East Lansing has now a bacteriologist who is giving his whole time to the diseases of bees. This will be supplemental to the work done in Washington, D. C.

Mr. Kindig is one of the best bee instructors in the United States. He is certainly making good in Michigan, and Michigan needs just such a man, because it is one of the three leaders in bee culture east of the Mississippi.



IN the August number of

Gleanings the editor has given us an interesting account of some of the field meetings of beekeepers which it has been the good fortune of the editor and of the beekeepers for him to attend. As he says, such meetings are becoming more common; but I wonder if the readers of Gleanings realize how very common they are. For some time the apiary inspectors have been coming more and more to realize the greater benefit to be derived from their work if they could get a number of beekeepers together all at one time for instruction in disease control, and these men, who are our original extension men, have held, and are holding, many such meetings. A large number of the States now have

men who are devoting their time and attention to the upbuilding of the beekeeping industry, and these men have also been active in planning and holding meetings for the betterment of beekeeping. Beekeepers themselves have long recognized that it is only by getting together for an exchange of views that they make progress in their business, and various state and county associations have for years been holding meetings. Formerly, as indicated by the editor, most of these were the regular annual meetings, usually held in the winter season, altho the holding of special field meetings or picnics in the summer is becoming more and more common. The summer meetings in New York, under the auspices of the State Association of Beekeepers' Societies, have

EXTENT OF BEEKEEPERS' MEETS

Extension Work Big Factor in Upbuilding Beekeeping. Number of Progressive Beekeepers Increasing

By E. F. Phillips

the number of beekeepers who profited by these meetings is only a matter of speculation. We all know, however, that these gatherings have had an important part in making beekeeping the important industry which it is today.

been among the best that have been held, from the standpoint of both helpfulness and attendance. The grand total of the number of meetings so held and of

Since 1916 an additional factor has been introduced into the plan of things in beekeeping, for it was then that the first extension men in beekeeping were put on the road. From the very beginning of this work it was recognized that there should be a closer organization of the beekeepers of the country, more associations and

more chances for them to get together. The bee journals have since then recorded the formation of a large number of new county associations of beekeepers, but none of them have recorded all these. At least 300 such associations have been formed, chiefly thru the efforts of the extension men. What this means for the future of beekeeping we cannot estimate, but several States, notably Wisconsin and New York, are forming all of these associations within the State into a federation thru the state organizations. It is thru such federation that success in the future of beekeeping organization undoubtedly lies; and this is recognized by the National Association, as shown by the plan to have a gathering of the representatives of all associations at Kansas City in



An American foul-brood gathering in California.

January. If all the associations send representatives this will be a large gathering of beekeepers. It is feared that most of the organizations are not yet quite ready for such a step, but the National can perhaps form the machinery thru which they may all get together later, when the advantages of such a large organization are more manifest.

Growth of Extension Work.

The forming of associations is merely incidental to the work of these extension men; in fact, this is a small part of their work. While we do not know the total of the work done by other agencies in the way of getting beekeepers together for mutual help and for instruction, we can get a line on the meetings held by the extension men, for those connected with the Bureau of Entomology make reports on all meetings held. During

gether, and most of us know that they did far more than this, the work is worth while, for beekeepers cannot get together without deriving benefit therefrom. The bee journals cannot report all these meetings, for there is not space in them even for adequate announcements. Photographs of the beekeepers at these meetings are not taken, altho there is almost always a camera enthusiast who wastes a few films on the crowds. If all the photographs taken were printed, Gleanings would have to be greatly enlarged even to give room for the cuts.

The Extension Man, Himself.

What is an extension man? It is generally recognized that he is a man who knows beekeeping, and that in his meetings and elsewhere he gives freely of his knowledge to the beekeepers with whom he comes in



Some of the soldiers are showing considerable interest in beekeeping, due to the government's offer to teach the business to returned soldiers. The short extension courses to assist soldiers in becoming efficient and financially successful apiarists are similar to those recently held at Ithaca, N. Y., and various places in California. The entire cost of acquiring the education is borne by the Government and the soldier paid a monthly compensation while the training lasts. Those in the above cut are disabled soldiers from Walter Reed general hospital visiting the Bureau of Entomology apiary.

the year ending June 30, 1919, these men held over 1,000 meetings, the total attendance being over 25,000 beekeepers. They also visited beekeepers in their own apiaries in 2,500 instances. This is, beyond doubt, the largest effort in getting beekeepers together that has ever been made, and it means something to the beekeeping industry. If we were to assume that the extension men did nothing else than get the beekeepers to-

contact. He is more than this, however. Going about as he does among the beekeepers he has opportunity to get for himself a vast store of knowledge concerning beekeeping methods, local conditions, and the commonest mistakes in beekeeping practice. Since he is a man of intelligence, going about with his eyes open, he cannot fail to gain a better outlook on beekeeping in the State in which he works than is possessed

by the average beekeeper, and soon it is a better knowledge of local beekeeping than that possessed by the best of beekeepers. There is no other education in beekeeping that even approaches extension work—for the man who does the work. Now as he meets other beekeepers he can not fail to pass on this additional knowledge. He may be likened, whether he likes it or not, to a sponge, going about taking up knowledge, squeezing it out at each meeting, but taking up a bit



Virginia beekeepers who listened to Hawkins.

more than he gives out each time. His meetings ought to, and do, become better as he goes on with his work. It is not so much because he was a beekeeper before he entered the work that he can be helpful, but it is especially because he has better opportunities than any one else to get information on bees that he can help others. As men differ, so do extension men in their ability to grasp facts and pass them on to others; but there are none of these men who have the false idea that they can get without giving and they are truly missionaries in spirit. In just the same way inspectors and state beekeepers have the chance to grow. That is why all these men can do for beekeeping and beekeepers what journals, books, bulletins, and even the efforts of beekeepers themselves cannot do.

The conclusion from all this is that the beekeepers of the country realize fully the need of mutual education, and it is to be hoped that they recognize the fact that the extension men have something which will help them in their apiary work. Any beekeeper who thinks that he can gain nothing from meeting with his fellow beekeepers, or who thinks that he has "secrets" which should not be divulged to other beekeepers, has much yet to learn.

Seven Extension Short Courses.

Among the meetings recorded above there were seven extension short courses, planned especially for commercial beekeepers. As has already been told in the journals, these lasted from Monday noon to Saturday noon, and it was not planned that these should be picnics. They are a rather steady grind,

and a beekeeper who attends all the sessions does a hard week's work. That the beekeepers desire this type of work is attested by the fact that the average enrollment at these schools was about 100, and there is a demand for more such schools in the future. The Bureau will be glad to keep on with this work so long as it meets a need and so long as the beekeepers continue to support the work so finely. Several of these schools are already scheduled for the coming winter. Of course, the courses are not attractive to, or planned for, amateur beekeepers, for the man with a small interest in beekeeping does not care to take the time for the courses. As is well known, the Bureau does its work in beekeeping on the assumption that the future growth of beekeeping in the United States should—must—be along the lines of making more commercial beekeepers and not encouraging those beekeepers who are satisfied with a few colonies.

Other Agencies Advancing Beekeeping.

Great credit should be given the inspectors, the state workers at the agricultural colleges, and others who have seen the need of getting the beekeepers of the country together. If the extension men can help further in this work, and if they can keep right on giving advice and help to those who are trying to make their beekeeping better, and if they can add their efforts to those of all



They came together in Montana to hear Sechrist.

the other agencies looking to the upbuilding of beekeeping as a commercial industry in America, then the day of better things in this industry is not so far distant. None of this work can be done without criticism, and there are always those who see utter annihilation of the beekeeping industry in any effort for its advancement. Fortunately those who wear these dark glasses are being slowly converted to a realization of the truth that beekeeping cannot stand still without going back, and the number of progressives in the trade is steadily and rapidly increasing. It is hoped that the number of beekeepers who meet with their fellow beekeepers during the next year may be double that of the past year; if this is the case, then the good accomplished will be multiplied many more than twice.

Washington, D. C.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter IX

ANNE LESTER did not leave the Lowe farm, as she had written her brother she planned to do. The protest she had naturally expected broke so overwhelmingly that there was no chance to overrule it. Quite evidently the Lowe family wanted her to stay. So, as she did not need to go and was happy there, she took them at their word, with a simple flax born of her own fine honesty, and stayed.

October came swinging across the earth like a wave of gold, setting Anne's young heart afire with its flaming beauty. Day after day she and Shep took long rambles thru the countryside and over the hills, bringing home great bunches of goldenrod or delicate aster or scarlet maple boughs. Or she sat reading, thru long, quiet, shining hours, stopping often, wondering, looking off across the autumn earth, letting the mood of it sink in.

"You know, Miss Anne," young Jack Lowe remarked one afternoon, as she came hurrying up the steps just before supper time, "I thought you were going to live here while Bob was gone."

"Well, don't I?" she challenged, turning back in the open door, cheeks like the bright burden of autumn branches she was carrying.

He shook his head mournfully. "You do not. You eat and sleep here, but you live in some mysterious place outdoors."

"Mysterious nothing," Anne laughed. "I'm the least mysterious person in the world. I've been up in the orchard this afternoon, reading Keats to Shep."

Jack groaned. "Why the orchard?"

"There's a lovely view from there, and—"

"I thought you liked Dad and the bees and things like that."

"I do."

"Then why Shep and the orchard?"

"They're things like that."

"Maybe so. But why not occasionally read in the yard, to Dad and anyone else that wants to listen?"

Anne hesitated. She honestly did not know herself why she had avoided Jack so much lately; she certainly didn't dislike him. "Perhaps I'm fated to follow Shep, the way Cadmus followed the cow," she finally laughed.

"Then someone's got to reason with Shep," said Jack.

Anne stepped quickly out on the porch, and handed him her armful of autumn beauty. "Please put these in the big urn for me," she said gently, "over in the corner of the dining room. I have to freshen up for supper."

The next morning, as they all stepped out on the porch after breakfast, up came Shep, wagging his tail and laughing at them all

out of his expressive collie eyes. "What's this, old fellow?" asked Mr. Lowe, leaning over to look at something tied to his collar. "Here, Anne, it's for you. Looks like a letter."

With a puzzled look, Anne untied and read the note. Then she laughed merrily. "It's from Shep himself," she explained. "Listen. 'Dear Miss Anne: I don't believe you always understand my tail-wagging, so I am trying letter-writing. I don't want to go to the orchard or on the hills today—it's too far. Won't you spend at least the morning under the maples by the house? Please. And I hope you'll read to me, as usual. Devotedly, Shep.'"

Anne took the dog's head between her hands and turned his face up. "I am very sorry, Shep," she said, gravely. "But I have an engagement with Mr. Lowe, Beekeeper, for this morning. Will this afternoon do?"

"Where are your manners, Shep?" demanded Jack. "Answer the lady. Say, this afternoon will do perfectly, Miss Anne. Say it, sir!"

Shep wagged vigorous delight at the attention received. "Gone back to tail-wagging," reproved Jack, "in spite of Keats and the correspondence course."

Two hours later the old beekeeper and the girl were starting their last examination of the bees for that season. Carefully they looked into the brood-chamber of every hive, working together again, that the wisdom born of many years' experience might judge the condition of each colony. At Anne's request, he talked as they worked.

"They are running about as I thought they would," he said once. "Our fall flow was not very heavy, yet heavy enough for most of the colonies to put away plenty for winter. A few have something to spare, and we'll draw on those for the ones that lack. Some years I can take off a little surplus from boneset and aster; occasionally I have to feed, when they fail completely. This is just an average year."

"Well, Daddy Lowe, I know you plan on 30 pounds of honey for winter. Please show me just how you decide how much to leave."

"A full-depth comb, sealed solid, has about five pounds of honey; a shallow, nearly three. That is the basis. I used to weigh the hives, after weighing empty equipment of the same size. But that was when I wintered in one chamber. Now that I use two stories or one and a half, weighing isn't so easy. Neither is lifting the hives, to estimate the weight. So I usually look thru each one. This way I can be sure that each one has, not only enough stores, but also enough bees, and of course a queen."

He was opening a hive as he spoke. "Now," as he set out two combs, and glance-

ed quickly at the others, "I'd say about 20 pounds here. Wouldn't you?"

Anne nodded, keenly observant and attentive. "If you don't count the unsealed, scattered around. How about that?"

"That doesn't help much towards actual wintering. Sealed stores are the thing to count on. Now we'll look in the lower chamber, tho usually the bulk of it is above. Two practically full combs, and sealed honey over the tops of several others. Fifteen or eighteen pounds down here. Between thirty-five and forty altogether. We'll leave it all, tho I'll make a note that we can take out a little if necessary."

Another hive had the upper story nearly full and a generous abundance in the lower. "We'll take away part of this," said the man. And he put the extra combs, heavy with their sealed treasure, in an empty super, closely covered, to be drawn on for those that might need.

Still another he estimated at 24 or 25 pounds. "That would probably do," he said. "It would more than take them thru the actual winter. But that's not enough to consider. I want to take them thru fruit bloom. Suppose we have an early warm spell, and they start rearing a lot of brood, then there comes a long, late, slow, cold, rainy spring."

"Oh, what a spring!" shivered Anne.

"Then they'd starve, likely, or at least sacrifice part of the brood. They're going to get an extra boost right now. I want them all heavy. If the extra honey gives out, we'll fall back on sugar syrup."

"I want to ask about reeding the syrup, Daddy Lowe," Anne interrupted. "I know you feed it in friction-top buckets, with the tops perforated. And make the syrup of two parts sugar to one of water, and feed it a little warm. But how much do you give? I mean, what proportion of syrup to the needed honey?"

"One pound of sugar for each pound of honey required," he answered.

Then they came to a colony that was queenless. "And what do we do with this, Daddy Lowe? How can we requeen it so late?"

"We aren't going to try to requeen it. We are going to unite it. Late this afternoon, after the bees are all in—or some cool day would do as well, just so the bees aren't flying—we can set it quietly over some colony that has a queen, with a sheet of newspaper between. They will gnaw thru the paper and unite without any trouble."

And then came one or two weak colonies. "This one might winter all right," the man said, "reduced to a single story and then contracted to about eight combs. Sometimes I do that, putting a division-board on each side, with chaff or dry leaves to fill out, and a chaff tray above. But I figure they are

apt to be weak because of a poor queen. So I usually kill the queen and then unite them. That's what we'll do with this one."

"About how small does a colony have to be for you to classify it as weak?" Anne asked thoughtfully.

"Look down in this brood-chamber. You see these bees don't fill out their whole hive, as the others have done. They are covering only about five combs. I call that small a colony too weak to be worth wintering."

So on down the sunlit rows they went, the bees humming gently around. "There is still a little aster coming in," Mr. Lowe remarked. "I like to make this examination before the flow is quite over, as there isn't such danger of robbing. Tomorrow morning we'll start putting on the upper packing, and contracting entrances."

Anne smiled. "At last the circle begins to close on my own experience. Last spring I helped take off those shallow supers of chaff. They had burlap tacked across inside, and rested on queen-excluders that were turned upside down over the bees. And we found no moldy combs at all in those hives, while there were some very bad ones in the few colonies you had left under sealed covers. Oh, I remember! And then there were the big packing cases. Four, weren't there, or five?"

"Five. I'll get those set up this week, too. It is true I didn't see much advantage in the big case compared to the top packing. Tho they may have used less stores. But the quadruple winter packing case seems to have struck a new note in progressive bee-keeping, and I'll ultimately put all my bees in them, if they really pay—in this locality. Anyway, I shall try these thoroly, for several successive winters. Then if they shouldn't make good, I won't get any more."

A little before noon, the vivid blue and gold noon of October, they left their work and started for the house to dress for dinner, the good old-fashioned midday meal of the country. As they crossed the porch, Anne stooped to pat Shep. And there, tied to his collar, was another note! She smiled, waiting till Mr. Lowe had gone in. Then, alone, she read it.

"Dear Miss Anne: I have persuaded Jack to come to our party under the maples. Persuaded, mind. And he especially likes Kipling's stories. He also likes that blue dress you wore yesterday. Loyally, Shep."

When Anne came downstairs, she slipped out to an althea bush near a particularly friendly maple tree, and there she hid a volume of Kipling's "Plain Tales from the Hills." Then she went on in to dinner, looking like a slender, starry-eyed young Quakeress, in a dress of soft dove-gray, with white at the throat and wrists. And she carried, conspicuously, the magical poems of John Keats!



REFLECTIONS OF A BACKLOTTER

Wintering Discussed by One Who Knows Nothing About It

This bee business, in which I am now engaged to a small or less degree, must be one of the most fascinating businesses in captivity for nobody ever quits it. The books tell me that there are nearly a million of us, but we all keep ourselves hidden in a mysterious way from the uninitiated. Until I bought my bees I never knew that the town is full of beekeepers, but now I am of the inner circle and get the high sign from the whole crew.

The bee business is a sort of fraternity. We have our meetings, informal it is true, for we are not yet organized as the fellows in the next county are; but we meet in the shops of members at irregular intervals, talk bees until you would think that we were talked out, and still on the next Saturday afternoon or whenever we get together there are just as many things that have to be discussed. That is the way of the beekeeper.

But I've been reflecting on the bee business, and not knowing anything about it, I feel qualified to express an opinion. That is another beauty of the bee business, or maybe I'll think it a disadvantage when I have been in it a bit longer. Anyhow that is the thing I want to talk about.

Of course, I read the journals—all of them. They are all good; but some are better than others, as the Colonel said of whisky. But, not having been a beekeeper long, this thing of talking when you have nothing to say still weighs on me. As I said before I am not qualified to kick, but being a beekeeper, therefore I do.

I have noticed in my reading of the bee journals that it is usually the man who is guessing that gets the space. The man who knows, who has had the experience, does not seem to be the one who has the floor. I wonder why. There are in the United States a lot of fellows who know all about the bee business; if there are not, then there ought to be. I think there must be. Yet when I read the journals (as I said before, I have not been at it very long) I am inclined to believe that the fellows who are doing most of the noise-making are not the fellows who will be followed by me, for I hope to be just as thoro a bee crank as the rest. I'm in this game for fair!

But maybe I'd better tell you some of my troubles, and then you can see where I'm trying to get off. I, like a darn fool, bought my bees last fall. Yes, I know better now, and for once the journals were right, for on one point they do agree. I should have

bought them in the spring, last spring I suppose.

Well, the first thing was to know how to get these bees lined up for winter. First I read about the quadruple winter cases that the government fellows are advocating, as well as a lot of other fellows. They sounded good, but there was the trouble that I had five. What was I to do about that? Finally I decided that the quadruple case is intended for the big fellow who has so many that if two or three are left out in the cold he need not count those.

At last I decided, not having gone very far with my reading, that I would pack four of them in one case and then hunt around for a way to fix up the other one. That was easy. The next thing was how to make the case. First I got the government bulletin which says that I must pack on the bottom, since so much heat is lost there if that packing is omitted. Then I read that away up in Canada they say that no packing is needed on the bottom! So I decided that since I am a long way south of Canada I would leave off the bottom packing, government or no government.

Then I had to decide how big to make the cases. Should I have two, three, or six inches of packing on the sides. The government fellows seemed to think six was about right for the sides. Next I read that there is danger of putting on too much. Just why I could not find out. Then I re-read the government bulletin and they said that it is impossible to put on too much! Being south of Mason and Dixon's Line, I decided on two inches.

Then how much on top? I'll not worry you with all the details of what I went thru on that subject, except that I finally decided on four inches.

But the thing that did get my goat was what they call upward ventilation. Should I leave a place for the moisture to escape? The government bulletin says that if I pack heavily enough I'll not need to allow for condensed moisture for the simple reason that there will not be any. Well, I guess I packed enough, for I followed the advice of a fellow who shall be nameless, so I did not leave an escape for moisture. I wish I could get my hands on that fellow. I said a while ago that nobody ever quits the bee business. He would!

To make a long story short, I lost three of the four colonies in that case. The combs were mouldy, so there must have been some moisture there. The bees died of dysentery, so I guess it was not very warm in there. The whole business is as sad a lot as I have seen for days. Yet I followed the advice of the experts.

Then I had that other colony, and some-



FROM THE FIELD OF EXPERIENCE



thing had to be done about that. The editor of one of the bee papers came out with a plan that listened good. I was told to turn my frames up on end, pack them in a thin box with a little sawdust around them and save myself all the trouble of making a large case. Here indeed was an authoritative statement and this was just what I was looking for. Me to the mill for a box! I didn't find it very easy to make; but finally I got it fixed up and after a few objections on the part of the bees I got them packed. I had to buy a new hive body to pack them in; but I suppose I can use that some other way some day, tho I've been trying to figure out how you can keep your empty combs during the winter in hive bodies, use the same hive bodies for making outside cases for the little box, and not buy new ones. That is one of the mysteries of beekeeping that I have not yet been able to master. I am, as I said before, green at the bee business.

Then when March came I took a look at this little case. It was full of brood, so there was nothing to do but unpack it and give the bees more room. I did. Just about as I was getting the frames right side up in a regular hive, Friend Wife appeared to remark that the government bulletin says that the bees should be left in their cases until time to put on supers, unless the swarming season comes on.

"Well," I said, "How in Tom Walker can I do that? These bees are crying for room right now."

"Maybe the swarming season is on," quoth Wife.

This was a stumper for me, so I left the bees where they were and went to the telephone and called up Jones. Jones is an old hand at the business, and really he is to blame for my getting into the game, so he has to bear a lot of questioning. Being fully and absolutely assured that it was not time for swarming, I went back to the job. Fortunately it was a warm day, and nothing happened in the way of chilling the brood.

But the next day it was cloudy, and the next night it cleared and got cold. Every time I shivered I did an extra shiver for the bees out there in a summer coat. It stayed cold for over a week, and, even if I am new in the game, I had sense enough to let those bees alone. When it did warm up I was at those bees as soon as I could get home from the office to see how they had fared during the late unpleasantness.

The bees were still there. Just how many may have died I do not know, for I didn't know them well enough yet to call them all by their first names. But there were a lot of dead ones on the floor. That was not the worst of it; there were a lot of the brood chilled. The long story about that hive may

be shortened down by saying that it did not recover from that chilling until after the honey flow was well over. I guess it cost me over half the crop, but it was cheap tuition. I know better now.

So my experience of the first winter was not what you might call a success. Three out of five gone; the other two weak. I bought some more last week and now have ten, so I am in the ring for keeps.

I talked this winter business over with the fellows at the last informal meeting of the Ancient Order of Bee Cranks and (would you believe it?) not one agreed with any one else as to the best way to winter bees. Now I'm a beekeeper and quite willing when in Rome to burn Roman candles. If it is the proper paper to decide these things by arguments, all right. If one should accept the advice of the big bugs without question, all right. If we are to decide every fellow for himself, all right. That seems to be the game.

But I've been worried a lot about this. As I said, I'll do the correct thing in the bee business even if I have to buy a new lot of colonies every spring, but my old habit of asking for a reason exerts itself in spite of my best efforts. So I've decided simply to tell you what I have done, to renew my pledge of loyalty to the fraternity, and as a last effort to say something, after which I'll slide into oblivion.

Why do all these fellows tell me how to winter my bees, when most of them are not able to give a single valid reason for the thing they advocate? Why do they say that no packing is needed on the bottom, when they have no data to back up any such statement? Why do they tell me that there is danger of too much packing, when not one of them can tell me what happens to the bees when they get too much? Why was that method of putting bees on their heads put in the bee journal when it was almost certain that there would be a cold spell after the packing had to come off? Was that a part of the joke column that had been misplaced by the printer's devil? They all tell us that the bees are wild animals that live just as they do in hollow trees, that they are not domesticated. Then why in Tom Walker, to whom I have before referred, don't they find out what those bees like best, and why don't they try to give them the conditions that will allow them to do their very best? I've asked these things, and now I'm ready to play the game according to the rules. Never again will I object. But it goes hard.

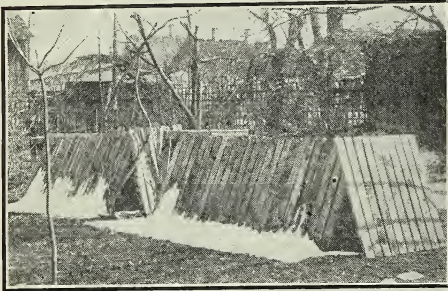
I almost forgot another question, that I intended to include before I took the oath. I put it to Friend Wife the other night, Why do the government fellows say that bees ought not be unpacked until swarming

FROM THE FIELD OF EXPERIENCE

time, when it is certain that I had to unpack mine in March to give them more room?

"Maybe," replied Wife, "they didn't imagine that anybody would be as big an idiot as you are and try every fool idea that is printed."

Friend Wife is not a beekeeper, so you must excuse her. Phil Franklin.
Maryland.



Chas. A. Black of Decatur, Ill., last winter used windbreaks around groups of hives.

ANOTHER STYLE OF PACKING

Demuth Plan Unsatisfactory for Practical Honey-Producers

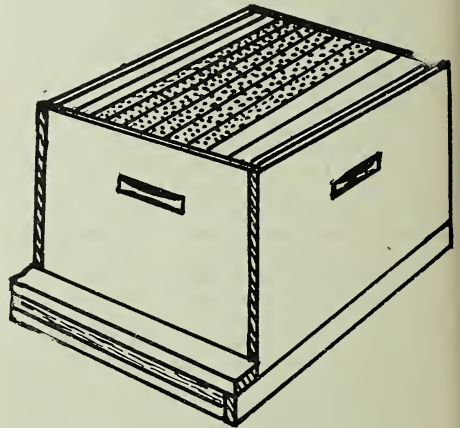
Since the Demuth plan of wintering bees in a shaftlike winter repository has been presented to the beekeeping fraternity by letter and illustration, I have spent much time in comparing that plan with the generally adopted ten-frame Langstroth hive and have tried to view their advantages and disadvantages from every side imaginable. Summing up the matter, I am inclined to the opinion that the Demuth plan will never be adopted by the practical, every-day honey-producer as a means of better wintering. For experimental purposes in a limited way it may give the scientist or the investigating beekeeper some satisfaction; but to the great majority of honey-producers it would not be profitable, as it involves too much unpleasant work for the beekeeper and unnecessary work for the bees in the fall and spring. The only advantage that can be claimed by the plan is the shaftlike shape of the winter nest, but nearly all other features are decidedly contrary to nature and to the interest of the beekeeper.

The operation in itself of sliding the frames into the inner case is to bees and beekeeper an unpleasant affair. It is a positive detriment to beekeeper and bees, as it completely upsets all their plans of arranging their winter quarters for which they have worked all summer in accordance with nature's dictates. If we examine the con-

tents of the inner case after the frames have been transferred, we find these conditions: The bees are stripped of the best part of their winter and spring supplies, and what is left is scattered in places where the bees would not store it, and none are found placed near the bottom-bars, where they would benefit the bees during winter. To overcome, or at least partially overcome this trouble, the transfer has to be made early enough in the season while honey is yet coming in, to give the bees a chance of supplying and re-arranging their winter stores; or else they have to be fed to make up the deficiency. The cake of candy may keep them from starving, but it has not the beneficial effect of natural stores of well-ripened capped honey.

In either case it is a disadvantage in one form or another to the beekeeper. If the transfer is made early, the hive with its appliances is so disarranged that the harvesting of surplus honey from a fall flow is entirely cut off; or, if made late in the season, bees are deprived of the privilege of restoring natural conditions, even if the owner resorts to feeding sugar syrup.

Then again the Demuth plan compels us to be satisfied with two inches of packing and a thin three-eighths inch inner case for winter protection. While this is better than



Brood-nest in center and division-boards at sides. Above this is placed a super with combs of honey in the center and division-boards at the sides.

no protection at all, it does not come up to the recommended six inches on sides and ends and from eight to ten on top, with a heavy one-inch outside winter case.

A much better way of transforming the flat ten-frame Langstroth hive into a smaller but deeper winter repository, which insures all the advantages of the Demuth plan and others besides and requires no extra fixings, is as follows:

Remove one-half of the combs that con-

FROM THE FIELD OF EXPERIENCE

tain mostly honey, and fill the so produced vacancies with division-boards, leaving the brood-nest intact as much as possible (see cut.) Put the same number of division-boards and the removed combs of honey into an empty super and place this upon the brood-chamber, and the transformation is completed. All of the conditions are then in harmony with nature's design. The brood-nest has not been disturbed, the winter and spring supply of honey and pollen has been placed where it can be reached almost any time during winter, and no spring feeding is necessary. The capacity of the hive is the same as before, but has been reduced by one-half in width and doubled in depth, conforming to the desired shaftlike shape and allowing plenty of space for winter stores. If these should be deficient, if the removed combs should not contain the desired amount of honey, heavier combs can be substituted when the change is made.

The covering can be done in the usual way, either with a sealed cover, a chaff mat or loose chaff over a burlap blanket.

The regular winter cases can also be used the same as with the flat hive; but it may be necessary to provide an additional rim to make them deep enough. This arrangement works equally well with cases of one, two, or more colonies.

LaSalle, N. Y.

G. C. Greiner.



CAMPBELL WEIGHING MACHINE

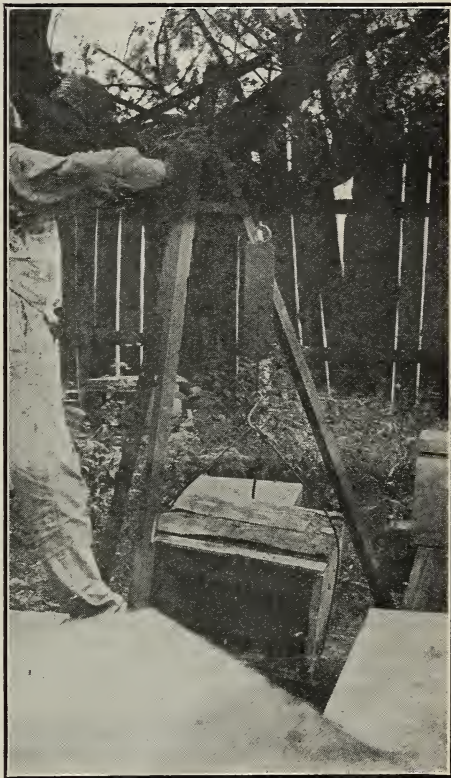
An Easy Way of Determining the Necessary Winter Stores

In the autumn of the year one of the necessary operations of the apiary is to get the weight of each hive, and to know it, not to guess it. A young man said to me recently that when a hive is weighed one has to guess at the weight anyway. He meant that the weight of the combs as well as the weight of bees varied, the amount of pollen in the combs differed substantially, and even the hives themselves were not uniform. "True, all true," I said, "but there is neither wisdom nor common sense in guessing when that is unnecessary."

Right here the question might be asked as to how much an 8-, 10- or 12-frame Langstroth hive should weigh. I do not care to go on record in this matter, but the question is a fair one and without being arbitrary I will say about 65, 80, and 90 to 95 pounds respectively.

It is an undesirable operation to set each hive on a scale. J. W. Campbell of Lambeth drew my attention to a device for weighing a hive of bees without placing it on a scale or removing it from a platform. As seen in the illustration, it consists of a tripod which is placed immediately over

the hive. There are three claws connected by means of a ring at one end. These three claws hook under the bottom-board at the back and two forward sides of the hive. A spring scale connects the tripod and hive,



Campbell's device for determining requisite stores.

and there is a lever attachment by means of which the hive is raised from the ground and the weight obtained. Mr. Campbell is a successful and expert beekeeper, and he deserves every credit for his idea.

Brantford, Ont.

R. F. Holtermann.



TO PACK OR NOT TO PACK

Data from Which One May Draw His Own Conclusions

When I came to British Columbia in 1908 there was in all the region west of the Rocky Mountains only one beekeeper who packed his bees for the winter, so far as I have been able to learn, and he was and is the most successful honey-producer in the region. Everybody assured me that packing was absolutely unnecessary in British Co-

FROM THE FIELD OF EXPERIENCE

lumbia—that bees wintered far better without it; so I took their word for it, but with mental reservations.

On my first trip as a bee inspector I worked for months in a region where bees were run on the neglected plan, and I came across many things that made me wonder where I was at. In fact, the whole bee situation looked topsy-turvy. Suppose one of my readers were to go into an apiary of 20 colonies, and find, as I did, an apple box turned upside down being used as a hive; that the said apple box had a crack one-fourth of an inch wide between the two pieces forming the bottom of the box (that was now the top of the hive); that in this makeshift hive he found a mere handful of bees doing their best to survive on a clump of combs about nine inches square and as many deep; and suppose he were told that the average rainfall that winter had been five inches a month, that several times the temperature had fallen to 11 below zero for several days at a time, and suppose he afterward found that miserable cluster filling the whole apple box with comb and brood, and that it was transferred to regular combs in August after the honey flow was over, and then sold for ten dollars—why, that reader would (or at least might) jump to the conclusion that packing for winter in British Columbia is absolutely unnecessary, and a perfect waste of effort and good material. But in the same apiary I found several hives where thousands of bees were lying dead on the bottom-board and plenty of sealed stores in the combs. Things of this kind jar a fellow; but they are just one more instance of the old saying that it is very risky to generalize from one experience.

I am writing this 80 miles from my home, so do not have access to my old notebooks, hence must quote from my last winter's results. The winter was the mildest by far that we have had since that of 1914-'15, so it shows less difference between packed and unpacked hives; but the figures are interesting all the same. My bees are prepared for the winter at the end of September, all getting about the same amount of stores. They are entirely uncared for until about the end of April, as I never see them between the two dates. On first inspection I make note of the amount of frames that contain brood, and also estimate the quantity of sealed honey on hand, both items being entered in my notebook while at the hive. At my leisure I work out the statistics by queens and packed and unpacked hives, with results that are worth learning.

The following statistics cover last winter, the inspection being dated April 20:

Packed Hives.		Unpacked Hives,	
Packing on sides and top.	but with top protection.		
Brood	Honey	Brood	Honey
5½ frs.	20 lbs.	4½ frs.	12 lbs.
Average for the whole yard, 5 frames of			

brood and 14 pounds of honey. On the face of it, it is evident that it costs me 8 pounds of honey more to winter in unpacked hives; and since I sold my crop last year at 20 cents a pound wholesale, the cash extra cost was \$1.60.

Now, all that has been given is plain sailing; but the moment we begin to go into group comparison we get up against all kinds of vagaries, yet the statistics are well worth thinking about.

All queens same age.	Packed Brood	Honey	Unpacked Brood	Honey
Goldens	5%	14	6%	19
Italian	3½	4	5%	10%
Carniolan	6½	25	4	15
My own	5	17	4½	14

One of my goldens is the top-notch of the yard. Last spring by the middle of May she had 30 frames covered solid with bees, and her colony had stored 40 pounds of honey and had drawn out in three days ten sheets of foundation and filled six of them with uncapped honey.

The winter preceding the last was a bad one in British Columbia. Our average loss was 40 per cent; but I got off very lightly. The difference between the unpacked and packed hives was very marked, but I do not have the actual figures by me. The weak colonies had a hard time to pull thru, even with generous helping of brood and stores from the packed hives.

In the past few years my persistent advocacy of packing for winter has won many converts, and I see some wonderful results in my travels. Brood in 15 Langstroth frames by the middle of May is not uncommon; in 12 frames is very common. We often get here the kind of colonies that eastern beekeepers dream about but seldom see.

This spring I learned something that rather startled me. I found that between April 20 and 27 my bees consumed seven pounds of sealed honey, even with a little coming in from fruit bloom. Just think of that—one pound of honey a day for brood-rearing! Not so very long ago I was perfectly contented if I found four pounds of sealed honey in the hive on the first examination. Last fall I left 20 pounds a hive more than had been my habit, and this fall I will make it 10 pounds more than a year ago. But there is a difference in colonies. My best had 30 pounds of honey left, while my poorest had nothing.

My judgment is that in British Columbia packing pays. I also think quite a number of my queens will have successors before snow flies, as I can not afford to keep a strain that eats so much in winter that there is nothing left for brood-rearing in the spring.

Victoria, B. C.

F. Dundas Todd.

B. F. KINDIG is doing for Michigan beekeepers what might well be imitated in other States. He sends out periodically what he calls a "Beekeepers' Letter," containing information and advice, served up in very readable style, which will surely result in bringing him in closer touch with Wolverine beekeepers.



Dr. C. C. Miller

Speaking of M. S. Mendelson in American Bee Journal, Frank C. Pellett says: "It is his practice to leave about twice as much honey on the hives as will be needed in a favorable season. He insists that surplus left with the bees pays big interest, as it saves feeding in times of shortage and insures that brood-rearing will be continued at proper times, even tho no honey is coming in." Perhaps that practice helps to account for the tons of honey he gets from his 1,400 to 2,000 colonies.

"A strong force of bees at the right time" is a slogan much in use nowadays. Of course it's a good slogan; no one will make a mistake in acting upon it. But I suspect that many a beginner is worried to know just when is "the right time," and just how to make colonies strong at that particular time. The right time in one locality is not the right time in another locality. In any given locality "the right time" last year may be later or earlier this year, and I don't know of any rule by which the most experienced veteran can tell very much in advance when the right time is to be. Well, if your location is like mine—and I suspect the majority of locations are like mine in that respect—you needn't worry over it. I wouldn't give any large amount to be told just when the right time is to be, nor how to make colonies stronger at that time than at other times. Oetl's golden rule, "Keep your colonies strong," with emphasis on the "Keep," fits well in this locality. I don't know that I ever got a colony strong too early, nor had one too strong later on. So my effort is to have strong colonies as early as possible, and then to keep them so. However, I've no quarrel with the other fellow whose location differs from mine, only I have some doubt whether there are so very many of him.

That's stimulative reading the editor has given us, page 565, September Gleanings, about the Nevada comb-honey wizard. I take off my hat to Harry Warren as a man who does things. But don't all you youngsters get the idea that the proper thing for you is to double up colonies to increase your harvest. It may not work with you. What's best for one may not be for another. Alexander increased his crop by dividing; Harry

Warren does it by doubling. It may be that either course would lessen your harvest. If each of your colonies can be made strong enough for the

harvest, then you would only double at a loss. "Prove all things; hold fast that which is good."

"In adding empty supers we have no definite plan to follow. Sometimes we put them below the partly filled, and again above. The transaction just depends upon the amount of time we can spare. Personally, I am inclined to believe that the best method is to add the supers to the top." Thus says Harry Warren's foreman, Mr. Damon, page 568. But he immediately adds that he wouldn't put an empty on top of one completely filled. Evidently it doesn't seem easy to find any one plan that is always best; and the fact that good beekeepers differ as to practice would rather indicate that it doesn't matter much what plan we follow. Yet there are some points of importance worth considering. If a super is left at the bottom till ready to take off, it will be finished sooner than if higher up. Yet pretty certainly the beautiful white cappings will be darkened; and that's bad. If any empty super is placed under during a good flow, the bees will begin work in it sooner than if it is placed over. In the former case the bees are coaxed into the new super; in the latter case they are crowded into it, and that crowding tends toward swarming. Take two colonies alike in every respect, and on the one, A, let the empty super be added always on the top, so that each super on the hive is older than the one above it. On the other hive, B, let each empty super be put at the bottom, so that each super on the hive is older than the one below it. You may count that the first super will be finished sooner on A than on B; but, as already intimated, it will be darkened, and A would be in more danger of swarming than B. B would occupy new territory more readily than A, and so would be spread over more ground. Now, with a larger surface to work on, and with comb drawn out a little more in advance of its needs than is the case with A, don't you think that B will store just a little more surplus than A, somewhat on the principle that more is stored in extracting-combs than in sections? At any rate, if I were obliged to follow strictly one plan or the other, I surely would add the empty supers below. But I should rather not continue it at the tapering off of the flow, when it's a little uncertain whether any more room will be needed. At that time an empty may be given on top as a safety valve, and the bees needn't use it if they don't want to. Moreover, if you give an

empty below when it is no longer needed, the bees will not draw out the foundation, but merely pass thru the empty super to work on the super above.

Now, after what I've said, at the risk of being called inconsistent, I must confess that during most of my years of producing sections I always gave the added super on top. But not for keeps. Next time round, if another super was needed, I moved that top super to the bottom, and then gave a fresh super on top. I count that empty on top important. If I was belated in getting around, it was there ready for use. If the fastening of the foundation was faulty, the bees would fasten it before the super was put down, and when put down it would seem more home-like to the bees than an entirely fresh super. Also it served as a sort of shade-board, and to that extent helped against swarming.

Speaking of getting bees to clean up extracting-combs, J. E. Crane says, page 583, "to get the bees to do it right used to be my trouble; but if you will first place an empty brood-chamber over the colony and then pile the wet combs over this, you will doubtless 'secure the hearty co-operation of the bees.'" I have tried it, but it doesn't always work here, altho I may have bungled in some way. To get extracting-combs, and especially unfinished sections, emptied out without allowing the bees of more than one colony to get at them offers a problem worthy the inventive genius of some future beekeeper.

No. 14 was a nucleus with a laying queen, brood in two combs, a whole hive to spread in, and everything apparently in apple-pie order. On the same stand with No. 14 was No. 13, with pretty much everything all wrong. It was queenless and broodless, with so few bees as to be not worth considering. I took away its few combs, leaving not even a frame in the hive, and put on the cover. On a later day I opened No. 14, and found not a bee in the hive. Combs nice and clean, brood and honey, with not a sign of robbing; only there were no bees. I lifted the cover of No. 13, and found attached to it a nice cluster of bees. In the center of the cluster was a newly built piece of comb of perhaps three square inches. It had some honey in it, but no empty cells ready for brood, altho, as I found afterward, a laying queen was present. I took the deserted combs from No. 14 and put them in No. 13, jarred the bees from the cover on the ground, scraped off the piece of wax and covered the hive, "and they lived happy ever after." Has any one any explanation for such a performance, or was it a case of just plain crazy? I give it up.

Drones from unmated queens are spoken of on page 602 as being dwarfed by being reared in worker-cells. Of course that doesn't mean that unmated queens do not some-

times lay in drone-cells, and then their drones are as large as any, and perhaps as good as any. Laying-workers have a decided preference for drone-cells; I wonder how it is with unmated queens. The workers appear to decide the kind of cells to be used by a mated queen, for they often prepare drone-cells outside a queen's beat. If the workers decide the kind of cells for unmated queens, I should hardly expect them to prepare drone-cells, seeing they already have too many drones. So I may be mistaken after all about unmated queens laying in drone-cells. [Yes, we have noticed in laying-worker colonies that, altho the worker-cells as well as the drone-cells contained eggs, the drone-cells often contained from 10 to 20 eggs while the worker-cells usually contained mostly one but occasionally two or three eggs. But altho in drone-cells more eggs are found to the cell than in worker-cells, thus possibly showing a preference, the entire number of drone-cells in the hive is so small in comparison with the number of worker-cells that by far the greater part of the drones hatching are from worker-cells, and are, therefore, dwarfed. The same, we believe, holds true of drone-laying colonies. In such colonies we have noticed entire worker-combs filled with drone brood. As to whether a drone-layer when given a choice in the matter would deliberately choose either drone or worker comb in preference to the other, we do not know, but shall put it up to the bees and learn the answer in a few days.—Editor.]

Iona Fowls, you say, page 602, "priority might give a man the apparent right to a location, yet he perhaps be a renter and a poor beekeeper at that. Later a man might buy a home in the same locality and wish to keep bees. It would be manifestly unfair to deprive him of this privilege." But isn't that sort of thing going on all the time with farm lands without being called unfair? Anyway, you say "the puzzles are worth solving," which shows you're on my side of the question, and I'm so glad of your company. The puzzles have been solved in other countries, and surely what others have done we can do.

I wish it might be settled definitely whether or not it is a safe thing to give unsealed brood to a colony having a virgin. Some think it's all right; others, especially in New England, are dead sure it's all wrong. I've lost virgins when I gave unsealed brood, but how do I know the brood was to blame?

On page 602 it is said no harm comes from pigs being occasionally stung; which is probably true. When I came to Illinois in 1856, rattlesnakes were plenty (I killed eleven the first summer), and it was said rattlers didn't hurt pigs because their hides were so thick. I wonder if that doesn't make them safe from bees.

IT will be a great relief to many beekeepers to read the short editorial on page 561, September Gleanings, and learn that it is possible to winter bees on a good grade of brown sugar. I have had many inquiries as to the wisdom of feeding it. Some years ago so much was said in Gleanings in regard to the value of raw sugar in building up colonies in the spring that I did all my fall feeding with it. While I do not think bees wintered quite so well as when fed granulated white sugar, they wintered fairly well. Bees did not take it quite as readily as a syrup made of white sugar, especially late in the season. Care should be taken not to feed too heavily, for if much is left in the brood-combs in the spring the bees are liable to carry it up into the supers and injure the appearance as well as the quality of the section honey.

* * *

It has been thought doubtful if "chunk honey" could be made a success here in the North, as the honey poured in around the combs soon granulates, making it unsightly and unsalable. A friend from the north part of the State called on me last week and said he was putting up in chunk form nearly all of a large crop of honey. This is how he does it. He gets his surplus in shallow frames, cuts it out, and fits it into ten-pound friction-top pails. Such a pail will hold six pounds of combs. He does not pour any extracted honey around the combs, as he says they ship well without it. He claims that the demand is very great for honey put up in this way, and that he has no trouble in disposing of his entire crop.

It is interesting to note the new ways of putting up comb as well as extracted honey. On pages 568 and 569 Miss Dorothy Quincey Wright tells in a charming way how she puts her honey in small paper packages. While my friend Darby puts his comb honey in ten-pound tin pails, she puts her honey in pasteboard boxes. This method is well adapted to those who have moderate-sized yards, with time and ability to do fine work.

* * *

J. A. Green, page 585, gives some very good reasons why an eight-frame hive may be better than a larger one. Many kinds of honey outside of the heat of the cluster of bees during winter are liable to granulate. If the bees do not tear this honey out, it becomes a nuisance; and, if they do dig it out, it is likely to be largely wasted. This shows the necessity of every beekeeper's thinking for himself and not taking what somebody else says as the best way. [Yes, it is quite apparent that big hives are not for everyone. D. D. Stover of Penn. Miss., who was in Gleanings office last week, said, "Do stop pushing the 13-frame hives.

SIFTINGS

J. E. Crane

We don't need any bigger hives. Our ten-framers are all right." Some others from the South have also expressed themselves similarly, so that it is

quite evident that no one man or group of men will be able to settle all beekeeping problems for the whole fraternity. Altho he will continue to receive helpful suggestions each beekeeper will be obliged to think for himself.—Editor.]

* * *

Speaking of large and small hives, E. R. Root on page 577 tells of the experience of Zimmerman and Crowder of Pasadena. He says, "The twelve-framers hardly swarm at all, while the ten-framers swarm—well, just as all ten-framers do, right in the same yard with the same honey flow and the same management." We have run our home yard the present season for extracted honey and could notice a wide difference in the swarming dispositions of colonies in hives having but one eight-frame super and those having two or three such supers.

* * *

Isn't that description of Italian bees robbing, given by T. W. Riggs in August Gleanings, rather imaginary? We take off a large share of our section honey and set the super down by the side of the hive for several hours for the bees to run out, and we have very little trouble so long as there is a good supply of nectar to be had in the fields; but when that fails, look out.

* * *

I should have liked to attend that circus at Medina when that car of oozing, dripping honey arrived. I have had experience enough in such matters to give me a fellow feeling for those who had the care of the honey. But I have been wondering how many that have shiftless ways of shipping honey will ever read the account given on page 562. They can't afford not to read it.

* * *

"Honey as a Breakfast Food," is a capital idea. While some are trying to increase sales by new methods of putting up honey for market, others are suggesting new uses for it. I am told by travelers that it is almost always found on breakfast tables at hotels in Switzerland. Honey has real value as a food as well as an appetizer. I prefer it myself to butter. It is good if mixed with peanut butter, and better still if mixed with the good old-fashioned dairy butter. See Our Food Page, in the September number of Gleanings, page 589.

* * *

I had an opportunity last week at our county fair to meet a good many beekeepers. Nearly all reported a short crop—from one-half to three-fourths that of last year. A few reported as much as last year.

DID you ever grow so tired of planning and cooking three meals a day that you felt like telling your family that you simply could not prepare another meal, that you never wished to see the inside of a kitchen again, that this eternally recurring three meals a day took all the joy out of existence? A woman who would deny such thoughts, after keeping house 15 or 20 years, is either a saint or not a truth-teller. I shall have to admit that altho ordinarily I enjoy housekeeping, particularly the cooking end of it, there are periods when it seems like mere drudgery, consuming so much time and strength that could be spent profitably and pleasantly in hundreds of other ways. If this is true of a domestically inclined woman, what must be the prevailing state of mind of the woman who has no love for cooking or kitchen work at any time?

When a woman loses enthusiasm for her work she needs rest and change, of course. Just here, let me remark that if more husbands realized the housekeeper's need of change of scene and work there would be fewer women who say "they just hate housework."

It also tends to keep up a woman's enthusiasm for her work to read an interesting article on household management, food values, or cookery. In my own case it makes little difference whether I agree with what the author says. Reading of other women's ideas stimulates one's mind to work out original helps and short cuts, and a page of attractive recipes lures one into the kitchen.

Another thing which keeps up a housekeeper's enthusiasm for kitchen work is something new in the way of equipment, even if it is nothing more than a nest of convenient mixing bowls, new muffin pans, or even a good, sharp paring knife.

Several months ago I told you about a tiny room or breakfast alcove, designed to save the housekeeper's steps. This month I am going to tell you about a convenient and inexpensive little kitchen. For years I have longed to work in a kitchen where everything needed in cooking hung in plain sight at just the convenient height; but our kitchen, built some 20 years ago, is the conventional sort with all equipment hidden behind cupboard doors, and I lacked the nerve to have it all torn out and made over.

Early this summer, when we bought a cottage on the banks of a pretty little lake a few miles from our home, I made up my mind to try that little kitchen of my dreams. The cottage was kitchenless, as the former owners had taken all their meals at a hotel. We therefore put in a partition,

OUR FOOD PAGE

Stancy Puerden

dividing one large bedroom into two rooms, each about 8 feet wide by 10½ feet long, using the corner room for our kitchen. Between this and the living

room was a tiny room which had been used as a lavatory and which we use for our refrigerator. A small closet also opens from the kitchen, and we added a very small screened porch, enclosing one end to make a small storeroom for such foods as are not kept in the refrigerator. This arrangement also affords me a chance to try a dining-roomless house, as we eat in one end of the living room, dropping the leaves of the dining table and pushing it back against the wall behind a screen when not in use.

To return to the kitchen, which I frequently do actually as well as on paper, notice the compact and convenient arrangement of refrigerator, cabinet table, sink, gas range, and storeroom; but the most convenient part of all, the shelves, being above the table, sink, and range, cannot be shown in the plan, so I shall have to describe them.

The cabinet table, being directly in front of a window, has plenty of light and air. It contains bins for sugar and flour and drawers for cutlery and towels. At the right, between the door of the refrigerator room and the window, at a height of 4 feet, 6 inches, is a shelf, 2 feet long by 6 inches wide. On this are flavoring extracts, spices and condiments, cornstarch, soda, baking powder, cocoa, and dry yeast. From a row of little brass hooks at the edge of the shelf hang a glass measuring cup, aluminum measuring cup, measuring spoon, mixing spoon, egg beater, biscuit cutter, cookie cutter, cheese grater, and lemon squeezer. As the ice box with shortening and milk is so close at hand I can mix practically anything without taking more than two or three steps, and a high stool being kept under the sink, I can work sitting if I choose. And on account of the view of the trees and green grass from the window it is much pleasanter to work at this cheap little cabinet table than at the regulation cabinet with upright cupboards, and just as convenient.

At the left of the window casing, over the sink and drain board and clear to the end of the room extends another six-inch shelf at the same height as the first-mentioned shelf, and ten inches above this shelf is another one, ten inches wide. This shelf extends not only to the end of the room, but around the corner and across the end back of the gas range to the outer door. The upper shelf holds mixing bowls, milk pans, baking pans of assorted shapes and sizes, cooking utensils, bread mixer, etc.; and on the part back of the little gas range are kept package breakfast foods which should

be in a dry place. This is also a fine place to put bread to rise.

On the lower and narrower shelf are kept, over the sink, soaps, cleansing powders, steel wool, etc.; and farther along at the right of the range are the teapot, coffeepot with their respective canisters, salt shaker, pepper box, and some of the smaller cooking utensils.

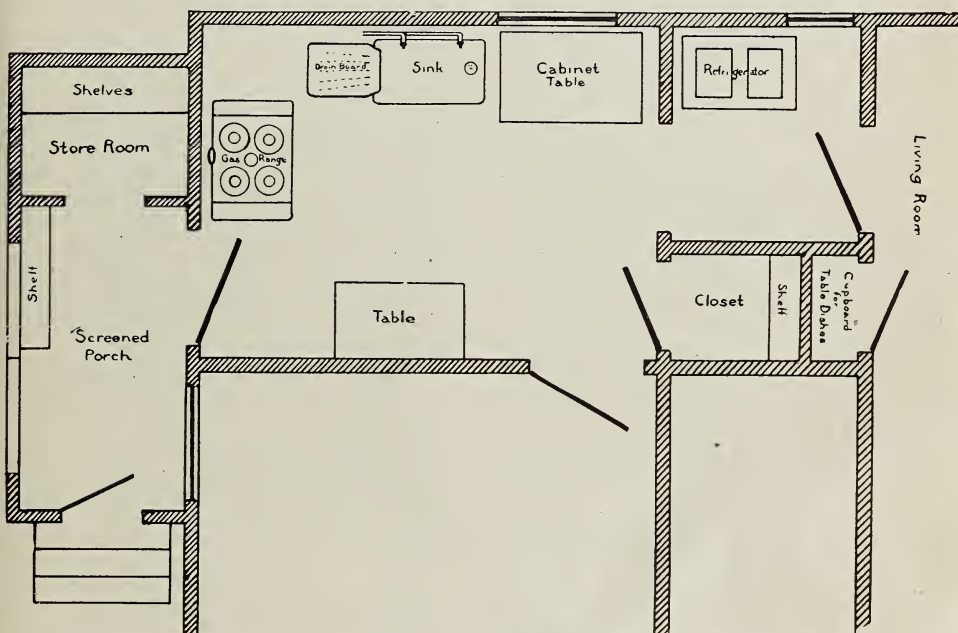
This lower shelf is studded with more little brass hooks, $3\frac{1}{2}$ inches apart from which hang, in the places where they will be most convenient, soap shaker, dipper, spatula, perforated spoon, pancake turner, strainer, and small utensils.

The little closet contained one shelf, ten inches wide, six feet from the floor. Under this was a flat molding in which were wardrobe hooks. We put in another molding lower down and added many more strong

ture. The table dishes and silver are kept in a built-in cupboard just inside of the living room.

Now, after working in a conventional kitchen with everything behind closed cupboard doors and after a few weeks' experience in my little cottage kitchen, I am ready to admit that I can work more rapidly and easily where everything is in sight and at a convenient height to save stooping. Of course in a house which is occupied the year around there would have to be more storage space; but for a summer vacation home I find this arrangement ideal, and it could easily be made suitable for an all-the-year-around home by building a larger screened porch and storeroom. A larger gas range with the side oven and broiler would also be more desirable for a winter home.

Many housekeepers do not realize how



Plan of a convenient kitchen in which everything needed in cooking is hanging in plain sight.

brass hooks. On these are hung frying pans, assorted sizes, and some of the larger kettles which did not look well on the kitchen shelves. It is really surprising how many utensils are made to hang from a hook. The manufacturers evidently designed them for hanging, and we housekeepers have been in the habit of nesting them one within another behind cupboard doors. In this closet there is room enough for broom and other cleaning implements and an ironing board.

In the little storeroom one of my boys put up a couple of broad, convenient shelves and a narrow shelf on the open part of the screened porch. A little table at the opposite side of the kitchen from the working equipment, a chair, a high stool, and a waste basket complete the kitchen furni-

much it lightens work to have the sink and work table of the proper height. For my height, 5 feet $5\frac{1}{2}$ inches in my shoes, I find $31\frac{1}{2}$ or 32 inches enables me to work and stand erect. A shorter person can also work conveniently at that height, but a taller woman should have the table and sink proportionately higher. Remember if you wash dishes in the sink to have the bottom of the sink the same height as your work table. Plumbers do not like to install a sink at that height, but plumbers do not wash your dishes. Speaking of dishwashing, in my little kitchen the dishpan also has its appointed hook beneath the end of the cabinet table next to the sink while a wire drainer hangs beneath the drain board.

Many housekeepers are puzzled to know
(Continued on advertising pages.)

ONCE, many months ago, we talked about the word "amateur"; what it really meant and how it came to be, in the misty long ago when the needs of the people shaped it out of and into their young, growing vocabulary. Another word has been picturing itself to me these last few days, my fresh interest in it being due to a little incident told at a luncheon by a charming woman writer whom I know. It happened in the recent first registration of women as voters in Tennessee. One of the registrars in her ward, she said, looked much like a little hickory nut, and the other had a pet goatee. The Hickory Nut asked how long she had been living at her present residence. Eight years, she told him. "Where did you live before you moved there?" he inquired further.

"Paris, France," she said. Whereupon he looked so flustered that the Goatee came to his rescue.

"Write down Paris, Tennessee," he directed in an aside. (We have a Paris, Tennessee, you know, fully the size of a lady's pocket handkerchief.)

"She said Paris, France," the Hickory Nut insisted, in a hollow, unbelieving voice, and wrote accordingly. "And what," he continued funereally, with painfully distinct syllabification, "what is your a-vo-ca-tion?"

"I wanted to tell him, in all honesty, that I hadn't any avocation," my friend said; "but I knew he meant vocation, so I told him I was a free lance."

"A what?" gasped Hickory Nut, looking as tho he might possibly be registering Joan of Arc herself.

But Goatee knew better the ways and phrase of the world. "She means," he explained, "that she is a writer. She writes for a paper called 'Free Lance.'"

I thought that was funny, but it grew still funnier when I found out later that there used to be a negro paper published in Nashville called "Free Lance"! And my friend is so—so—well, so not that way, you know. (Yet I wish everyone might know how unswervingly, during the war, the finest of Nashville's white women, including this lovely woman herself, served negro soldiers at the Canteen, wrapped overseas Christmas packages for negro women, and supplied the present negro paper with Red Cross notes for their columns. And even as it was done in Nashville, so it was done thruout the South.)

Well, Hickory Nut's "a-vo-ca-tion" kept running thru my mind, till I began to wonder if there might be any possible justification for using it synonymously with vocation, as one's main occupation, instead of the only way I knew it—as a sideline. My interest was further challenged by the fact

Beekkeeping as a Side Line

Grace Allen

that in different conversations on the subject, I found one man who thought an avocation was a former vocation, something a person used to do before he did

whatever he was doing now; and a woman who thought the word applied only to the trades. So I went to the dictionary. While Webster didn't exactly back the Hickory Nut, he didn't exactly back me, either. He had room for us both in his first, second, and third definitions; tho he does reassure me by saying that the use of avocation for vocation is contrary to good usage.

But the thing that interested me most, and carried me on the wings of wonder and imagination away back into the long ago, was the derivation. I had never happened to think of it before, apparent tho it is. Take vocation first—coming down to us of this day thru the Latin *vocatio*, a bidding, a calling, an invitation, from *vo-care*, to call. Don't you see the poetry in it, and feel life itself pulsing thru it? We, too, speak of a person's calling, but do we think of it in the vivid way of those ancient people whose constant literal use of the expression actually made the word? Into their hearts and across their lives a call was sounding—some work called them and they followed it; that was why it was their calling, their vocation.

Can't you imagine their grave elders, the white-bearded patriarchs of a long-forgotten age, asking the different boys of that day, "What work is it that calls you, my son? Which of them all is calling to you?" And some sturdy lad must have said, "I hear the earth calling—I shall be a tiller of the soil." And another, "I hear the voice of fine gold ringing in my ears—I shall be a goldsmith." And one may have said, "There is a voice sounding from the potter's wheel—it calls me day by day; I shall fashion the clay into clean vessels." While still another may have heard the anvil's clanging voice inviting him to be a smith. Doesn't the thought of it all recall the old beautiful words?

All these put their trust in their hands,
And each becometh wise in his own work.
Yea, tho they be not sought for in the
council of the people,
Nor be exalted in the assembly;
Tho they sit not on the seat of the judge,
Nor understand the covenant of judgment.

* * * * *
Yet without these shall not a city be
inhabited,
Nor shall men sojourn or walk up and
down therein.
For these maintain the fabric of the world,
And in the handiwork of their craft is
their prayer.

Surely, too, some youth in those old days, even as also in these, must have said, "I

hear the very voice of God calling me. I shall be a priest and serve Him continually in his temple." Oh, these things that have called to men's hearts thru the ages! These callings the people have heard and followed! These vocations!

I think avocations must have come later, perhaps when the calling voices were less plainly heard amid the rushing clangor of a civilization growing constantly more complicated, and men had come to choose their work for its expediency or its profit rather than in answer to the summoning force of its appeal. For an avocation is a calling away, a distraction, some interest that calls our hearts away from the main work we have set them to—something that calls and calls, insistently, irresistibly, until we take it up as our very own secondary work, a lesser occupation, a something else to do that we can love and enjoy—a sideline that carries us merrily away from the steady and all too often uninteresting main line.

So I love to think that beekeeping is for each one of us either a real vocation or a real avocation; **the one work** that called to the hearts of those who follow it professionally—the one interest that calls away from other work those of us who claim it for a sideline, those of us who are most of the time merely business men or housekeepers or lawyers or railroad conductors. Indeed we, of all others, have heard with the outer ear as well as the ear of the spirit, the magic humming of an irresistible voice, calling to us from the apple blossoms of spring and the clover fields of summer or across the blue and gold sunshine of October, when goldenrod and aster are in bloom.

* * *

Here's the kind of letter that so often gets written to the daily papers all over the country, and sounds so convincing to readers who don't know any more about the subject, nor think any more thoroly or clearly, than the writer. It appeared a day or two ago in a Nashville daily:

"To the Editor of the Banner: Here is a ray of light which may prove interesting and probably helpful to your 'fair price' committee:

"On Aug. 27 I received, laid down in my house, postage and insurance paid, from an apiary at Aspen Hill, Tenn., ten pounds of first-class strained honey for 25 cents per pound, net. On the same day the Banner carried the following advertisement from a Nashville self-serve store: 'Honey, 5-oz. jar, 20 cents.' Undoubtedly the honey I bought at 25 cents a pound could have been bought at wholesale for 20 cents per pound, or less.

"This would show a clear profit of something like 300 per cent, for your retailer, which is going some, I think. Yet the middleman says he is not to blame."

Three hundred per cent profit! Poor Retailer! In the first place the Aspen Hill producer sold too low; every one around here is getting 30 cents in 5-pound tins, no

postage nor insurance. In the second place, the retailer almost certainly did not buy in bulk and bottle it himself. He undoubtedly paid a bottled price for it. In the third place, even if he had bottled it, that process would have cost time and labor (as it surely did cost someone); he would have had to pay, and pay high, for the little jars (as some one surely did pay); 32 glass jars against one tin bucket! In any other than a self-serve store, a clerk would have had to wait on 32 different customers to sell it; and in any kind of store, it meant 32 wrappings and 32 times to make change.

Don't you wish people would think thru a proposition, instead of dashing off public letters about 300 per cent profits?

* * *

On our upper back porch there are two water faucets and a sink. During the hot days of midsummer one little bee found this hitherto undiscovered water supply. Trip after trip she made to where the drops of water stood shallow and inviting on the smooth enamel of the sink. For days she came, and I called her Rebecca. To all appearances, she was as faithful and gentle as that other young Rebecca who took her pitcher to the well and found the courier of Romance there begging for a drink.

The only time my winged Rebecca acted unhappy was when hot water came pouring into the sink and the steam floated up and around. Then she would protest mightily, tho I do believe she was more puzzled than provoked—much as that other Rebecca might have been if her well had occasionally sent up clouds of steam and buckets of hot water. One day one of the family threatened her. "If this pesky bee doesn't quit hanging around here, she's likely to meet an untimely end," I heard. "Why, she's not pesky at all," I protested. "That's Rebecca; she comes every day."

First there came a laugh, our friendship and her name having been until that moment unconfessed. Then came a low solemn warning. "Well, all right, Miss Rebecca, draw all the water you want. I've got just one thing to say to you. If you're not mightily careful, you'll get written up in *Gleanings!*"

Which is probably the only reason she is.

* * *

DEATH IN OCTOBER.

I think I shall not mind it much to die.

But, Death, please wait till I am very old!

Then some October, come. When earth is gold
And heaped with garnered fruits and roofed on
high

With blue that lures our longings past the sky,
When bees drift gently home to hives that hold
Their dreams, come true; these restless hands

I'll fold

And in the flame-tipped earth contented lie.

Yet I shall not be here, but, oh, so far—

Some place, perhaps, where it is always spring,

With forward-lookingness in everything

And beauty still to break in soul and star.

But, oh, October earth, I love you so

I hope it may be autumn when I go!



FROM NORTH, EAST, WEST AND SOUTH



In Southern California.—We are very sorry, indeed, to report the retirement of Mr. and Mrs. J. D. Bixby from the editorship of the *Western Honey Bee*. Mr. Bixby took over the paper at a time when failure was in sight and has made a grand success of it. A large subscription list and quite a bank account were turned over to the new editor and treasurer. Mr. Bixby is a practical beekeeper, who did not need the income from the paper but did the work from a pure love of it and a desire to help his fellow men.

When the comb-honey producer is not offered as much for his honey per pound as the extracted honey is bringing, it is no wonder that he is asking himself if it is not about time to make a change. Now after visiting with a number of comb-honey producers and hearing from them of their success in making good crops, I feel that it would be a mistake to change over to extracted-honey production. There are several reasons for this, the first being that they are already equipped for comb-honey production. There would be a big expense incurred in making the change. Second, they understand the methods necessary to produce comb honey. And then, third, I find that in good seasons they get in many instances as many pounds per colony as the extracted-honey producer. The war demand threw prices all out of balance—not only on honey but on many other commodities—and most of us feel sure that comb honey will again bring prices much above that of extracted.

The San Bernardino and Riverside County clubs held a joint field meet and picnic at Urbita Springs, near San Bernardino, on August 28. About 100 beekeepers were present from all parts of the two counties. Among the speakers were R. Powell of Riverside, J. D. Bixby of Covina, Ray Fairchild of Redlands, and A. K. Whidden of Hemet. A rising vote of thanks was given Mr. and Mrs. Bixby for their excellent work of editing and publishing the *Western Honey Bee*. Universal regrets were expressed at the necessity of their giving up the work.

Many beekeepers over the southern part of the State find their bees very short of stores, and some will find it necessary to feed them. It was not so much a scarcity of bloom as a failure of nectar-secretion that caused this condition. The reports from the bean fields have not materially changed since last month. A few will get some surplus honey but the majority will feel satisfied if the colonies gather enough honey for winter stores.

The writer enjoyed a three weeks' camping trip thru Inyo and Mono counties during August. Trout abound in the mountain lakes and streams, and deer are to be found in many of the mountains. Inyo County stands

first in our State as a comb-honey-producing district. While this season's crop will not be a record breaker, it promises to be a good crop. Alfalfa is grown extensively where irrigation is practical, and it furnishes much honey. Sweet clover grows along the ditches, roadways, and waste places wherever it can get a foothold. I found small patches in the most inaccessible places while fishing along the mountain streams. Away back in the hills the sweet clover is getting quite a start. Beemen and many farmers are taking considerable pains to scatter the seed along all streams, irrigation ditches, and moist lands. While the stock do not take to it at first, preferring the native grasses and alfalfa, nevertheless they soon become accustomed to it and do well on it. In the Owens River Valley of Inyo County, it yields nectar until the frost; while with us in the lower valleys it usually dries up in July or August. L. A. Bell, living about five miles from Independence, Inyo County, has a fine wild-buckwheat range. Some of the crops he has made in former years will compare favorably with our banner crops in southern California. Disease gave the beemen of that district much concern for several years, but most of them feel that they have it under control at the present time.

The beekeepers are much encouraged with the prospects of a good price and feel that our Honey Producers' Exchange has done much to repay them for their efforts.

Corona, Calif.

L. L. Andrews.

* * *

In Northern California.—On page 524 of August Gleanings, A. E. Lusher wrote that while moving colonies he never sprinkled them with water, adding that "every one I gave least bit to always smothered." On page 587 of September Gleanings, Dr. C. C. Miller surmised that possibly Mr. Lusher gave only a small amount of water to colonies on the verge of smothering, and, had more water been given, such colonies would have been saved. Dr. Miller's conjecture must be right. The writer cannot understand why the application of the least bit of water should always cause colonies to suffocate. However, he believes Mr. Lusher wishes to point out that water is by no means the first consideration in moving, but that bees can be moved under practically any condition and at any time and for distances of about one hundred miles without giving water. Your correspondent believes this to be a fact; at any rate, he follows this in practice. Sufficient room and ample ventilation are of first importance. A strong colony in warm weather must have these; but if crowded and with little ventilation no amount of water will save them—not even ice water. Of course, the degree of warmth and ventila-



FROM NORTH, EAST, WEST AND SOUTH



tion and the temperature of the colony enter largely into the question. Quiet Italians will never gorge themselves like excitable blacks, and the melting-down of combs is almost always caused by overeating. I have mentioned that bees could be moved under practically all conditions without supplying water. However, if a colony of bees contains a quantity of **unsealed brood** and is to be moved a considerable distance, the bees must have water in order to keep the brood alive. Mr. Lusher's colonies undoubtedly had a considerable amount of unsealed brood, and, as he said in his article, were moved at sundown. At that time the water-gatherers had provided sufficient water until morning, and, if the bees did not arrive too late at their destination the following day, the larvæ were saved. Too few migratory beekeepers pay enough attention to unsealed brood. It will almost always be noticed that bees, after having traveled most of the night and not liberated before nine or ten o'clock the following morning, will send out searchers for water with the least possible delay. If you want to be sure to save your larvæ, give your bees a little water at sunup.

Bee weather favored us during August, and most of us will now get from a half to three-quarters of a crop. The nectar sources during the month were principally alfalfa and aphid honey along the rivers. At this writing (Sept. 5) the alfalfa is tapering off, but the river honey continues to come in. Blue curls is yielding, but as yet alkali weed and jackass clover have failed to secrete much nectar. M. C. Richter.

Modesto, Calif.

* * *

In Ontario.—The Ontario beekeepers will hold their annual meeting in Toronto on Nov. 11, 12, and 13, according to present intentions. These dates are earlier than for the past few years and are so arranged to give visitors to the convention an opportunity of also taking in the Horticultural Show which will be held Nov. 10-15, if I have the dates correct. The directors confidently expect the Show in November will eclipse all former exhibits both in the matter of exhibits and attendance as well.

August has been quite cool thruout the whole month with the exception of two or three days, and cool weather in August invariably means a light crop of buckwheat honey. However, we are thankful for at least enough buckwheat honey to make the brood-nests quite heavy in most cases and to provide funds to buy sugar for those still short of stores. At one yard where we have no buckwheat within reach of the bees, starvation has threatened some of the colonies; and I understand this condition has been quite general in some of the western

counties where clover failed and no buckwheat is grown. The longer I keep bees, more than ever am I convinced that the best locations in Ontario are the comparatively few places where both alsike clover and buckwheat are grown in abundance. I am free to admit that very often the localities where no buckwheat is grown produce a finer sample of clover honey than is possible in buckwheat districts; yet the prices of the slightly better honey are not high enough to make up for the lack in August of buckwheat, which would have made the brood-nests heavy and often would have yielded a good surplus as well.

In this locality buckwheat and goldenrod bloom much earlier than in places farther south. Mr. Sladen of Ottawa finds that goldenrod in the Gatineau district north of Ottawa blooms earlier than at Ottawa. Why this difference is hard to understand as the clovers, basswood, and other honey-producing flora almost without exception bloom earlier in the south than in the north.

As far as I can learn, comparatively little honey has yet been marketed here in Ontario to date, Sept. 9. Dealers seem to be holding out for lower prices than the producers are asking, and time will tell how the game will end. In the meantime quite a lot of honey is being sold to beekeepers in localities where the crop failed.

That the crop is "patchy" in Ontario is an accepted fact. One Eastern man writes, "best crop ever, 170 per colony from clover, and sample excellent." As we have had some of this honey I can vouch for its being "excellent." A Western man writes "poorest crop in 30 years." A number of these latter reports, common in Ontario this year, should be given to throw a real light upon "Beekeeping in Ontario," as so extravagantly represented on page 572 in September Gleanings. By the way, I wish to say that I was amazed to read some of the statements of the writer of the article in question, especially where he says there is little disease in Ontario. The clause reads, "Disease has not as yet been very active in Ontario, altho in the southern part a few traces of American foul brood are evident." I do not know the writer of the article but I respectfully submit that he knows little of what he is writing about, so far as disease is concerned, when he expresses an opinion like that. I suggest that he visit the Provincial Apiarist at Guelph and get information on this subject, and have a look over the map in the office showing hundreds of blue- and red-headed pins where disease is prevalent. Unfortunately both European and American foul brood are present in many parts of Ontario, much as we regret the fact, and there is no use of disguising what we know to be true. Brood diseases are as much a menace as ever here



FROM NORTH, EAST, WEST AND SOUTH



in Ontario as in the U. S., and I think those in a position to know will bear me out in this statement.

J. L. Byer.

Markham, Ont.

* * *

In Texas.—The beekeepers of southwestern Texas are suffering from a very severe attack of "The Disappearing Disease." The area affected reaches from Travis County on the north to Live Oak on the south, and Dimmit County to the west. The disease broke out August 15 and has covered almost the entire section, hardly an apiary escaping. Some apiaries that were strong with young bees have suffered but little, while in others many colonies have died. The description of the behavior of the bees' attack by this trouble coincides in almost every particular with the description already printed in Gleanings. As usual, when a new disease puts in its appearance the beekeepers at once suspect that the bees have been poisoned. A large number of plants are suspected of having caused this trouble. It is a significant fact that the large majority of these plants yield pollen only. Many of our best beekeepers have noticed that for some peculiar reason it has been hard to keep queens in the hive this summer, and now that this disease has become so prominent they have connected the high death rate among the queens with it. When the disease attacks the hive, it is reported that the queen dies first, then the worker bees, later the young workers and brood, and the drones last. Just what the loss in Texas will be, cannot be estimated for at least two months.

The fall season has opened with the prospects for a fine honey flow. The division between the summer and fall blooming periods was never more pronounced than this year. During the last three weeks of August even though we had an abundance of rain there were practically no native flowers in bloom. Cotton during this season gave a steady honey flow. Bitterweed, the "bane" of the beekeeper, seems to have completed its blooming period. With the beginning of September a large number of fall plants came into bloom, and the flow promises to be heavy and prolonged. Broomweed is very abundant and will be at the height of its blooming within three weeks. At the present time the bees are working on five species of *Eupatorium* (boneset). The various varieties of *Compositae* called rosinweed will be in bloom shortly. Throughout the Trinity and Brazos Valleys, heart's-ease or smartweed has become thoroughly established, and the bees are working it heavily. If conditions are favorable, there may yet be a fall flow from cotton; but it is doubtful at the present time, as the leaf worm has defoliated a large per cent of the cotton in

Texas. It will require a month for the cotton to come into bloom again.

As evidence of what the honey flow has been in the cotton section of Texas, one of the prominent honey-producers of that region writes that he has already taken off 20,000 pounds and that there is now 10,000 pounds in his hives to be extracted. He has made no estimate on a fall honey flow, but 5,000 pounds would not be a high estimate. Throughout the black land belt of Texas cotton and bees form a combination that can not be excelled.

A start has been made in establishing the regional experimental apiaries. It will be remembered that the work was made possible by the appropriation of \$6,000 a year for this purpose by the last legislature. The yard at College Station will be used for work requiring daily attention and special equipment. The one at Dilly in Frio County will be used to solve the problems of the southwest Texas beekeepers. A queen-rearing yard in Bexar County will be used exclusively in tests on a large scale on the subject of bee improvement.

The beekeepers of the State are a unit in their expression of surprise at the announcement that F. B. Paddock has resigned the position as Entomologist and State Apiary Inspector of Texas, to become Apiarist of the Iowa Agricultural College at Ames, Iowa. Mr. Paddock has been identified with the work of the Texas Experimental Station for eight years, and for four years has had complete charge of the work of foul-brood control. It was thru his efforts that the present system of county inspectors became possible, and thru them is the present keen interest in the betterment of beekeeping. With the expressions of regret over the loss of Mr. Paddock, are the wishes for success in his work in Iowa. The loss of the leader has only momentarily staggered the beekeepers. Trained as they have been by him and now the responsibility thrown on them, they will rally to the aid of the new leader, whoever he may be, and the work will go forward as never before.

The bee moth is a subject of interest to all beekeepers, and especially to the beginners who have not as yet learned that strong colonies and regular care render the moth almost harmless. As commonly spoken of, the bee moth, or wax worm, refers to the insect destroying the comb of bees; and, farther, this damage is supposed to be largely the work of the large bee moth, *Galleria mellonella*, the lesser bee moth, *Achroia grisella*, not being widely distributed. It is interesting to note that in Texas the lesser moth is more prevalent in the portion of the State east of the Trinity River. In the territory between the Trinity and the Brazos the two moths are found in about equal numbers, and west of the latter-named river



FROM NORTH, EAST, WEST AND SOUTH



the large bee moth is the more prevalent. The lesser bee moth has never been reported from southwest Texas. It would seem that this moth is migrating westward with less rapidity than its larger relative.

College Station, Tex. H. B. Parks.

* * *

In Minnesota.—"Greatest State Fair in History — Attendance 582,217 — Receipts \$335,000 — Profits \$175,000—Attendance 150,000 Over Previous High Mark—\$3,000,000 Expansion Needed—Plans Begun." So read the big head lines in the Minneapolis and St. Paul papers at the close of the State Fair. And we rejoice to be able to announce that the beekeepers of the State took advantage of the opportunity to the extent that the honey exhibit far exceeded that of any of the last few years. This was due in large measure to Carl B. Straves, superintendent of the apiary exhibit, who has been untiring in his efforts to arouse the interest of the beekeepers of the State. We have been informed that no other State in the Union allows so much building space for apiary exhibits as does Minnesota. This space was filled, and plans are already under way for enlargement of the building and rearrangement of the interior parts. We are confident that the beekeepers will not disappoint those who are planning for larger things, but will give full and hearty co-operation towards making the apiary exhibit of 1920 the best and largest ever made in this country.

Grover C. Matthews of Colchester, Ill., has just come to the State and entered upon his duties as assistant professor of bee culture at the State University. Mr. Matthews has had experience as a practical beekeeper on a large scale in the alfalfa districts of the West and we believe that his coming to the State will be an inspiration to our commercial beekeepers to branch out still more extensively in the business. The overflowing enthusiasm of Professor Jager, and the large practical experience of Professor Matthews as his assistant, give the beekeepers of Minnesota reasons to expect great things from the Bee Culture Division of the University.

On the 16th of August the beekeepers of the southern portion of Mille Lacs County held a field meeting. In automobiles they drove from apiary to apiary where demonstrations of various kinds were given. During the day there were fully 100 different persons in attendance at one or more of the meetings. The itinerary was arranged by the county agent, Mr. Dahlberg, who is wide-awake to the interests of the beekeepers of his county. It is estimated that at least 50 tons of honey will be shipped out from that locality this year.

The Winona County beekeepers held their

annual summer picnic at Homer on August 28, which was greatly enjoyed by all present. After a feast of good things prepared and served by the ladies, the neighboring apiaries were visited and various plans and methods illustrated. About 40 were in attendance.

Chas. D. Blaker.

Minneapolis, Minn.

* * *

In North Carolina.—C. L. Sams, bee specialist for the co-operative Federal and State movement for the development of bee culture in North Carolina, is rounding out his second year in the State, and the progress of improved beekeeping is quite gratifying. There are a score or more of beekeepers' clubs, and these and many individual beekeepers not yet allied with any of the clubs are putting in improved hives and adopting the improved methods of beekeeping. One beekeeper is reported as having transferred all but ten of his hundred-colony apiary from old box hives into modern hives and is obtaining more than three times the quantity of honey formerly obtained per hive. This beekeeper is so delighted with this change that he is putting in 500 more improved hives.

Along with the adoption of the improved hives is a change from the old black bee to the Italian bees, and the change is spreading rapidly, with promise that North Carolina will ere long take a front rank among honey-producing States.

One of the biggest acquisitions in the industry the past year has been the establishment by Elton Warner of Porto Rico of a 600-hive apiary in Buncombe County, near Asheville. He has thousands of colonies in Porto Rican apiaries, and will now enlarge his North Carolina apiaries and make Asheville his home.

E. E. Kirkham of Jamaica, whose father is a beekeeper in that country, served in the world war with Canadian forces and has now located as a beekeeper in Beaufort County. He has a 100-colony apiary near Washington where he is getting fine results.

As a rule North Carolina bees are remarkably free from disease. Just now two apiaries, owned by the same man, in the edge of Dismal Swamp, partly Perquimans County, are infected with European foul brood. It seems that the outbreak there has been traced to a migratory commercial apiary. The disease spread to wild bees in swamps adjacent to the Sound, and has now extended thru the swamps and across a neck of the Sound 12 miles to these other apiaries. It is expected that the disease will be checked before it gets out of Gates and Perquimans counties. Specimens sent to Dr. Phillips have been pronounced European foul brood.

Raleigh, N. C.

Wm. J. Martin.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Honey Cases Made into Demuth Cases.

In making preparations for wintering a number of colonies of bees according to the Demuth plan, it occurred to me that the box for holding two 5-gallon honey-cans, if stood on end, would answer all the requirements of a first-class case for the combs. All that is necessary to prepare the box for use as a winter case is to remove carefully the cover and one end of the box, and, of course, the partition if the box has separate compartments for the cans. Construct a rim around the open end to hold the sides and bottom of the box closely in contact. The cover of the box is to be used as a follower, and the removed end as a cover. This box has the advantage of being readily adapted to almost any size of colony, as the follower confines the bees to just the space they can occupy for best wintering, up to 10 L. combs. The rim around the top makes the box sufficiently deep to provide the required space for feeding, it being 20 inches deep, inside measure, exclusive of rim.

In using this box in connection with the quadruple three-story hives, as a winter

thru the sides and ends of the quadruple three-story hives for holding these boxes or the Demuth cases will serve to hold them tightly in contact, and the nails are easily drawn out when the colonies are removed. As these honey-boxes are $10\frac{1}{2}$ inches wide

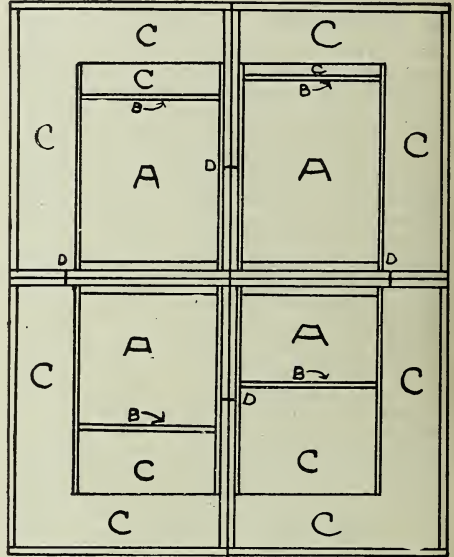
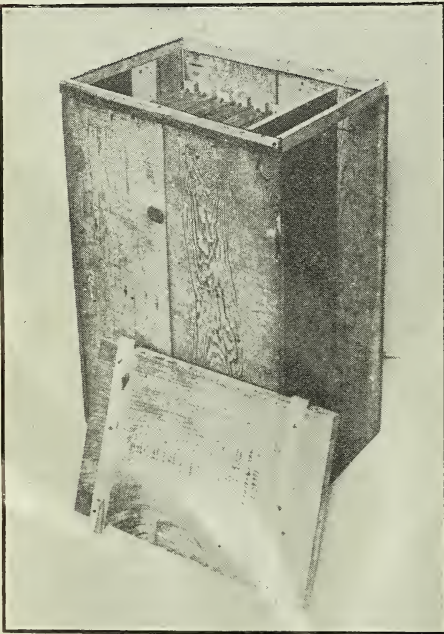


Diagram showing scheme of wintering four colonies in honey cases made over into Demuth cases, and packed in four three-story hives. C represents packing; B, followers; A, compartment occupied by the bees; and D, nails holding the 10-frame hive bodies in contact.



Honey case made over into Demuth winter case.

case, as illustrated in editorial in the 1918 October Gleanings, place the boxes on end with backs against the inside short dimension of hives, backs to backs and sides to sides, as per diagram. A few nails driven

and $15\frac{1}{4}$ inches deep without the cover, outside measure, it will be seen that this box, when cased with the 10-frame L. hive bodies, as per diagram, allows for $3\frac{3}{4}$ inches packing at the sides and four inches at the front ends when the box contains 10 Langstroth combs, and correspondingly more packing when fewer combs are used.

The cheapness and economy in using these boxes in wintering bees will be better understood when we consider that after the bees are removed from them in the spring they are readily convertible to their original use as honey cases. Beekeepers who have not these honey cases on hand and wish to save colonies that would perish without extra protection and who will need honey cases of this kind next season, would do well to purchase them this fall. They would thus get double use of them and, no doubt, a more bountiful crop of honey to fill them.

There is no doubt that bees will winter better in a deep narrow enclosure. Especially is this mode of preparing colonies for winter to be recommended where the colo-

HEADS OF GRAIN FROM DIFFERENT FIELDS

nies are numerically weak, and where it is desirable to save nuclei capable of covering the spaces at the tops of three or four combs when stood on end.

Kenmore, N. Y. O. L. Hershisier.

Screen and Chaff Cushion Give Upward Ventilation.

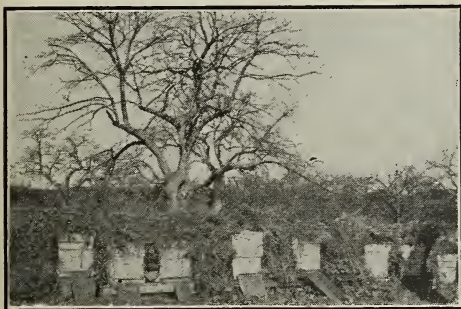
In 1917-1918 I did not lose a colony, and the bees came thru strong in the spring and produced a good crop of honey. The winter was one of the worst we have had in sev-

The screen $\frac{5}{8}$ of an inch or so above the brood-nest and under the absorbent material makes an ideal clustering place for the bees (if one takes the trouble to look he will always find some there), and it gives them easy access from one frame to another over the top, which I think is quite a feature, especially in cold weather.

If hives could be arranged so that this plan could be followed, I should think it would be a great deal cheaper and require less labor than with the various winter cases. There will be more or less mice about the hives packed this way, but there is no danger if the entrance is cut down to the proper size. I use an opening for my hives about $\frac{3}{8}$ by 7 inches.

L. C. LeMay.

West Hartford, Conn.



Newspapers and asparagus tops used as packing.

eral years and the loss to most beekeepers was very heavy. I have found this to be a very convenient and economical way to winter bees.

The hives are left on the summer stands a few inches above the ground, facing the south. A wire screen, tacked on a frame of $\frac{5}{8}$ by $\frac{7}{8}$ -inch lumber, made with the same dimensions as the hive body, with a brace across the middle, is placed directly over the brood-nest, and a super of chaff over that. I like to put the chaff in a burlap sack and then pack it in the super; this keeps it from sifting thru and makes it easier to handle.

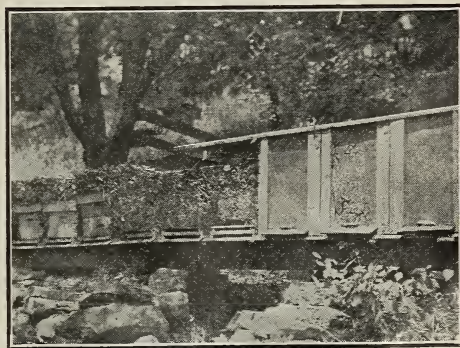
I hardly think this sack would be practical for a very large apiary, for it would require a great many bags which would be good for only one season, as the moisture they absorb rots them and makes them unfit for that use again. After the chaff super is put on, about five thicknesses of newspaper are wrapped around the four sides, lapped in such a way that the northerly winds can't get thru; the top edges of the paper are folded in, and a common metal roofed cover slipped on over the top.

This method of packing, in itself, is a good winter protection; but a sufficient amount of loose material, such as straw, cornstalks, etc., packed in back and over the top of them, makes it doubly sure.

This year I used asparagus tops (not tips), that had grown up and died down. Last year I used cornstalks but I think one is as good as the other.

One Way of Wintering.

Due to a steep hillside my bees are placed close together—in fact, are not over six or eight inches apart, yet I find that the virgins seldom miss their hives. I have the hives in straight rows, and close together, so as to accommodate a number of them on each stand. The stands are made of 3 by 8 lumber resting on rock or brick supports. The cut shows a row of them on a rock wall. Another row is placed on the same angle of ground, but with just



Packing the hives in long rows for winter.

the necessary few stones under the stand to level the support above the ground.

Hemlock, O.

John Bieseman.

Entrance Prevents Direct Draught.

While there are no beekeepers of the strictly commercial kind in this part of the country a great many people keep some bees, and a few people have from 30 to 100 colonies. The style in which my colonies of bees come out in the spring has led others to adopt my idea of protection. I found out in the beginning that the entrance was the weak

HEADS OF GRAIN FROM DIFFERENT FIELDS

point, and, seeing such a full discussion in Gleanings last fall, I have thought it might be worth while to show the way I keep the wind out. I make this entrance on the level with the top of the bottom-board and



the same height as the regular summer entrance and about $\frac{3}{4}$ inch wide, and have never had one clogged with dead

bees. I am sure no direct current of wind can reach the cluster or even the hive entrance. In this altitude we have cool nights and I leave my bees packed all the year. I believe this to be an advantage even in our hottest weather.

N. C. McNeil.

Marlington, W. Va.

Extracting Time.

(With Apologies to
Walt Mason.)

Some kick off supers with a frown and rush them shopward on the run. They slash off cappings up and down, and sling out honey by the ton. All day they hustle in the loot till muscles ache and backbones creak, for visions thru their noodles shoot of filthy

swag to last a week. They never seem to care a whoop that bees are robbed of precious store. They're hoarding riches in their coop, and bees can starve or get some more. They never seem to care a rap what happens to the bees next year. They see the shekels now on tap, which puts their thinkers out of gear. They take all supers as they go, and when this messy job is thru, they sneak out combs from down below to add a paltry bone or two. I'm slinging sweets myself just now, I'm smeared with honey thick and thin; with aching bones and sweating brow I go to roost at night all in. I need the loot as much as they who put their bees in starving plight, for bills accumulate by day and always double in the night. But my poor knees get weak and shake, when I attempt to take it all. My chicken heart will throb and quake at times when strong hearts never pall. So when I take the supers off and see the scanty stores below, I sometimes hesitate and cough, then slip the bees a comb or so. But if this year I'm forced to beg, just watch my smoke in 1920. Some kill the goose to get the egg, then starve while I have geese a plenty.

Indiana.

Bill Mellvir.



THE BACK LOT BUZZER.

This "gassin" th' bees by the Miller plan of introduction didn't work at our house. Ma, not knowin' what was up, turned in the fire alarm.

IN our last issue we explained how the bees should be supplied with plenty of good stores for winter; but in the mean time many letters have arrived in Gleanings' office, saying the requisite amount of sugar cannot be obtained. Two have asked if they can use foul-brood honey, and others have suggested using brown sugar.

Now, altho we know bees have been wintered successfully on a good grade of brown sugar we certainly do not recommend it except as a last resort. It is possible that damaged sugar may be purchased from the grocer, baker, or freight agent. This can usually be obtained at a low price; and, if it contains no foreign matter that could harm the bees, there is no reason why it should not be used.

But in case no sugar can be obtained we advise feeding honey. This, of course, means honey that is free from the germs of foul brood. If there is any doubt about the honey, the beginner should not feed it, but should purchase from a beekeeper whose bees are absolutely free of disease. It seems rather expensive to buy honey to feed bees, but we believe they are worth it.

Wintering in the Cellar.

After feeding, the colonies should be prepared for winter. If one has a good cellar that can be kept dark, and at an even temperature between 40 and 50 degrees, he can probably winter safely in the cellar. Good vegetable-cellars are usually quite satisfactory for wintering bees. If wintered in the cellar the entrances of the hives should be made small enough so that mice can not enter, but should not be entirely closed. According to the Government bulletin on wintering, where the average temperature is 25 degrees F., or slightly lower, the bees are wintered preferably in the cellar if the stores are good. Bees should be put in the cellar immediately after the last good flight, and taken out when the first natural pollen may be gathered, when it is warm enough so that they may have frequent flights. Now, these times are plainly quite indefinite, and hard to determine accurately; and for this reason it is probably safer for the beginner to winter outdoors.

Wintering in Packing-cases.

Those who have single-walled hives, and wish to winter outdoors, will need to provide good packing-cases. These may be made to hold from one to four colonies, and may be of any cheap lumber available. There should be from five to six inches of packing on the sides and top, and many prefer at least four underneath. A bridge should extend from the entrance of the hive to the outside entrance of the packing-case, so that no packing may shut the entrance,

TALKS TO BEGINNERS

By Iona Fowls

preventing the flight of bees on any possible warm days. If prepared in this way with bottom packing, but little entrance will be needed. Five $\frac{3}{8}$ -inch

holes, and in cold weather two or three, will be sufficient.

Wintering in Double-walled Hives.

Among the different ways of wintering outdoors, the beginner will find the double-walled hive quite easy and satisfactory if he takes the precaution to contract his brood-chamber to seven or eight frames (the number depending upon the size of the colony), crowding over the combs to the warmer side of the hive, and at the side of the frames placing a tight-fitting division-board, filling the space with tightly packed forest leaves. When contracting in this way one should take care to leave the colony with at least 30 pounds of stores. Tho this manner of packing is less troublesome than the preceding plan and brings the bees out in the spring in good condition, some object to it because of the necessity of opening them in the spring to give more room and possibly more stores. However, the beginner who is really interested in his bees will find this no drawback.

The tops of the frames may be covered with a mat or canvas or burlap held up from the frames by a few small sticks placed crosswise of the frames in order to provide the bees with passageways from one frame to another. Next to the mat is the warmest part of the hive, so the bees will readily pass from one frame to another when they need more honey.

A four- or five-inch tray, slightly smaller than the telescope cover, and filled with well-packed forest leaves, should be placed over the mat. The burlap attached to the bottom of the tray should be left baggy, and secured to the sides of the tray by wooden strips nailed on the lower inside edges. This allows the tray to fit tightly to the top of the hive, and prevents the wind from blowing under the tray. The hive should be left facing away from the prevailing winds with an entrance $\frac{3}{8}$ inch by two or three inches.

All colonies wintered outdoors, regardless of the style of packing, ought to be protected by windbreaks of shrubbery, trees, buildings, or a high board fence with two-inch spaces between the boards to break the wind somewhat before reaching the hives.

Before leaving the hives for winter they should be given a firm foundation up a few inches from the ground, and given a slightly forward tilt so that the inside of the hives may keep dry. During winter, and until May in the Northern States, the best care one can give his bees is to leave them quite undisturbed.

SINCE early boyhood, E. R. Root has suffered much from earache, his last trouble along this line being as recent as two years ago. This summer he noticed that he was gradually becoming deaf; and, on going to a specialist who had cared for him in the past, he found that the continued inflammation had finally caused an accumulation of pus in the inner ear, thus necessitating what is known in surgery as a "radical mastoid" operation. This was successfully performed on Monday, Sept. 8.

Mr. Root was able to leave the hospital on Sept. 17, but will have to continue treatments for some weeks to come. Fear of any complication now being remote, there is every reason for a complete recovery. It is a strange coincidence that this same trouble is what caused the early death of that able apicultural writer and authority, W. Z. Hutchinson, the founder and editor of *The Beekeepers' Review*.

Later: Mr. Root is back in the office and says he is feeling fine.

Our Texas correspondent, F. B. Paddock, State Entomologist of Texas, has tendered his resignation and has accepted the position of State Apiarist of Iowa. A man having so wide a view of beekeeping is bound to make himself invaluable wherever his work may take him. We are glad to say that, altho in a different State, Mr. Paddock has agreed to continue as our correspondent.

The fall field meeting of the New Jersey Beekeepers' Association was held at the State apiary at New Lisbon on Sept. 10. Demonstrations were given of packing and unpacking, queen-finding, queen-introduction, and treatment of American foul brood.

The Northern Idaho Beekeepers' Association was organized at Sandpoint, June 26, 1919. Arthur Sires of Sandpoint was elected president; E. A. Anthony of Rathdrum, vice-president; and Edgar L. Ludwick, the Bonner County farm agent, secretary and treasurer. The new association expects to hold a meet twice a year.

The annual meeting of the Northern Illinois and Southern Wisconsin Beekeepers' association will be held in Rockford, Ill., in Memorial Hall, on Tuesday, Oct. 21.

At the Kansas State Fair, held at Topeka, were displayed colonies of different strains, hives, devices, wax, various honeys, honey vinegar, fruit and cookery sweetened with

JUST NEWS

Editors

honey, and flowering plants from which the different honeys were gathered. The exhibit in the apiary section was unusually good. The prizes were tak-

en by Roy Bunger, A. V. Small, A. M. Rock, O. A. Keene, Geo. Pratt, and Jas. A. Murrel.

Renting of bees has become an industry in the Yakima valley, Washington. E. Bowles, who harvested \$12,000 worth of cherries from a 6½-acre orchard this year, has completed negotiations with Dr. C. R. Ponting to rent 40 stands of bees from the Ponting apiary next spring at \$5 each.

Howard Myers was working over a 250-gallon honey vat, 9 feet deep and nearly full of strained honey, when he lost his footing and plunged into the vat, sinking into the honey until he was all but covered. His partner, John Adams, grabbed him by the hair of his head and held on until Mrs. Adams brought a chain which Myers fastened around himself, when he was drawn out, stickier, but no sweeter for his experience. —The Buffalo Express.

The Cayuga County Beekeepers' Society held a basket picnic at the home of Geo. L. Ferris of Five Corners, N. Y., on Tuesday, Aug. 26. Between 60 and 70 beekeepers attended. Addresses were given by Prof. Rea of the New York State College of Agriculture, Ithaca, N. Y., and C. E. Weatherby, County Farm Bureau.

H. A. Scullen, bee expert from Washington State College, has visited this locality in an effort to determine the cause of excessive mortality among bees. W. H. Tucker reports 80 colonies lost and 150 badly depleted at a loss of from \$10,000 to \$12,000. E. E. Starkey of Biggam reports 50 colonies entirely lost and others depleted. His loss is \$2,000. K. P. Runa states that of 25 thriving hives he has not enough left for one. Harry Fisher, Don Pearl, and others report similar conditions.—Spokesman Review.

The Kansas Beekeepers' Association will hold their annual meeting for 1919 at Topeka, Kansas, Dec. 18-19.

The following is the program for the Extension Short Course for commercial beekeepers, to be held in Yakima, Wash., Nov. 10-15. Monday: A talk by Dr. E. F. Phillips on "Behavior of Bees in the Fall," followed by Geo. S. Demuth on "Beekeeping Practice in the Fall." Tuesday: "Behavior of Bees in Winter," Dr. Phillips; "Beekeep-

ing Practice in Winter," Geo. S. Demuth; "Wintering as Practiced in Washington," H. A. Scullen. Wednesday: "Behavior of Bees in Spring," Dr. Phillips; "Beekeeping Practice in Spring," Geo. S. Demuth; "Bacteriology of Bee Diseases," A. F. Sturtevant; "Queen-rearing," Dr. Phillips; "Evolution of Beekeeping Practice," Geo. S. Demuth. Thursday: "Behavior of Bees in Summer," Dr. Phillips; "Beekeeping Practice in Summer," Geo. S. Demuth; "Symptoms and Gross Diagnosis of Bee Diseases," A. P. Sturtevant; "Locality," Geo. S. Demuth; "Visiting with Beekeepers," Dr. Phillips. Friday: "Behavior of Bees in in Swarming," Dr. Phillips; "Swarm Control," Geo. S. Demuth; "Laboratory Diagnosis of Bee Diseases," A. P. Sturtevant; "Factors Influencing Nectar Secretion," Dr. Phillips. Saturday: "Treatment of Bee Diseases," A. P. Sturtevant. Leading beekeepers of the State will also appear on the program and take part in the discussions.

* * *

The fall convention of the Connecticut Beekeepers' Association will be held in the old Senate Chamber at the State Capitol, on Saturday, Oct. 11.

On the program are a number of good addresses: "How I work my supers to get the best crop," Chas. J. Rost, Meriden; "New appliances in beekeeping," William L. Dodge, Derby; "Swarm control via queen-yards, yard records, and an increase in honey crop," C. W. Goodsell, Waterbury; "A woman's success with bees, and how I won it," Mrs. Alice M. Swanson, Mansfield; "How I pack my bees for winter, and reasons for each step," Daniel Sullivan, New Britain; "How I manage my apiary to get best results," J. C. Potter, Guilford.

Prizes of \$1.00 and 50 cents are offered as first and second prizes respectively for best jar of light extracted honey, best jar of dark, best section of comb honey, and best exhibit of one pound or more of wax.

* * *

With the organization of the Liberty Bell Bee Club in Pasco, Wash., there has been launched what is intended to become a state-wide and perhaps a national institution. The corporation is planned to increase the production of honey, to stimulate the saving habit, and to provide an educational fund to assist worthy students in need of help in securing a higher education.

The mother apiary of the organization will be started in Pasco, the work being under the supervision of L. S. Crossland. Plans call for the raising of \$2,500 capital in this county, and Mr. Crossland will guarantee 8 per cent return on the money invested. As soon as the stock has been sold other apiaries will be established at other points and the capital stock increased, eventually spreading to all parts of the State. It is provided that one-half of all earnings over and above the initial dividend shall be paid

into an educational fund to be controlled and used in accordance with the by-laws of the organization.

* * *

To the Beekeepers of America:

At the annual meeting of the National Beekeepers' Association at Chicago last February, there was evidence of dissatisfaction with the existing National organization. Provision was made for a convention of delegates from the various state associations to meet in Kansas City on January next. These delegates will come together to put into concrete form your views of what a National Beekeepers' Association should be. Your delegates must answer the following questions and many others:

Shall the National be exclusively a social and educational organization?

Would such an organization satisfy the needs of 800,000 beekeepers?

Has the National kept pace with the development of American beekeeping?

Should the National foster the organization of co-operative exchanges in the various States and take an active part in the business life of American beekeepers?

Shall the annual meeting of the National be a social meeting with an educational program or shall it be a business meeting of delegates from state organizations?

What shall be the future relation between the National, State, and County organizations?

Shall the National undertake a nationwide advertising campaign?

Shall membership be open to anyone or shall it be confined to bona-fide honey-producers?

Shall the National maintain a paid secretary, and an office which is open for business the year around?

These are some of the questions which will come before the meeting of delegates at Kansas City. Your delegates must be present or the opinions of the beekeepers of your State will not be represented.

The well-organized States of the great West will be there. The delegates from the Central and Eastern States should be there to present their opinions. Nearly all organizations in the Central and Eastern States will hold annual meetings within the next three months. This matter should be taken up at each of these meetings. By all means send a delegate to voice your sentiments.

It is not a question of whether the National shall live or die. The National will live, but its future activities will be modified to suit the needs of the beekeepers it represents. Whether it shall represent a section of the country or all of the nation may depend upon whether or not beekeepers from all sections participate in its reorganization. It is incumbent upon every organization to take some action on this matter.

B. F. Kindig,

Pres. National Beekeepers' Assn.
East Lansing, Mich.

QUESTION.—What are the prospects of getting sugar this month for bee-feed? The weather has been so bad that the prospects for a fall flow are poor, and there is absolutely no sugar here. I am selling the largest quantity of white-clover honey in years and still have a lot on hand. But I am thinking of stopping selling and saving it for the bees. Yet it seems too bad to keep all this high-priced honey for the bees.

Vermont.

N. H. Wilson.

Answer.—It does seem a pity to feed such fine clover honey to the bees when sugar would do just as well and perhaps better. We are in hopes that you will be able to obtain the sugar in time. Yet we feel you are wise in reserving enough honey for the bees until you actually have the sugar in your possession.

Question.—Can you tell me what is the cause of honey becoming candied in the comb? I have just taken off a super with five out of eight combs filled with candied honey, and capped. I could not extract clean, and the honey is now candied, and consequently is not clear. Is there any way to remedy or prevent this?

Virginia.

Esther M. Meredith.

Answer.—As we understand it, the combs were not extracted clean, and the honey candied in the bottoms of the cells. Then later, when the bees filled these cells with honey, this honey also candied. If a little candied honey is within a cell, one can be quite certain that it will cause the candying of other honey placed there later. It is a good plan, after extracting, to allow the bees to clean out the stickiness from the comb in order to prevent this later granulation. We might also add that honey from certain sources candies more readily than that from other sources.

Question.—I feel much disgusted with myself this afternoon. It was with misgivings that I killed two one-year-old queens to put in two young ones. The ones I had, had the frames filled with brood. This afternoon I found one of the queens dead in the cage; and the other one, after four days in the cage to get acquainted, was smoked in, but was balled; and when I loosened the ball she flew away. Is it wise for one who does not raise queens to run the risk, especially where the queen is comparatively young?

Illinois.

Edwin Bebb.

Answer.—The young queens are to be preferred, we should hardly recommend that you requeen every year. Still, we believe that it usually does pay to requeen every two years. You will doubtless have better success next time at requeening if you requeen during the honey flow, when the bees are more apt to accept the queen readily. A very successful way of requeening, and one entailing but little risk, is to introduce the new queen or queen-cell to a nucleus of two or three frames of hatching brood. This nucleus should be provided with a cover and bottom-board, and placed immediately over the cover of the colony

GLEANED BY ASKING

Iona Fowls

to be requeened, having the entrance contracted, and facing in the direction opposite that of the lower colony. If the introduced queen is a virgin, she could

easily be mated from the upper story; and, after she begins laying, all of the unsealed brood from the lower hive may be placed in the upper hive, and the old queen killed. Between the upper and lower hives may be placed a screen so that the bees of the upper colony may get the colony odor of the colony to be requeened. After two days remove the screen very quietly and insert a single layer of newspaper. We have just requeened an entire apiary by this method and have found it satisfactory.

Questions.—(1) "Grouping in Fig. 1 looks better and takes up a little less room than in Fig. 2, but the latter is more convenient if two people are working together at the same hive—Editor."—Page 587, September Gleanings. I'm much interested about that "two people working together." Seems sociable



Fig. 1.



Fig. 2.



Fig. 3.

like. We do a little at team work in this locality, but perhaps not as much as we should. Please give us particulars about "working together." (2) You make no mention of the usual way of grouping, Fig. 3. Is there anything wrong with it? I have used it for many years and like it, yet not having tried either of the other ways may not know. Fig. 1 takes up more room than Fig. 3. If better in any way, in what way?

Illinois.

Dr. C. C. Miller.

Answers.—(1) Queens are more easily found when the hive is first opened than later; and therefore two working together can find a queen in less than half the time it would take one alone. Also, when one keeps enough colonies to make his living in that way he is sometimes obliged to work with bees at an unfavorable time. An inspection of the brood-chamber may be required when bad weather or robbers render it unwise to have the hive open any longer than is absolutely necessary. At such a time two may work at the same hive to advantage. With one on each side of the hive, two people equally swift in their manipulations may rapidly examine the combs, each taking alternate combs. The one who handles the last comb shuts up the hive while the partner is opening the next one. This is also an excellent way of teaching a beginner and helping him to gain confidence in himself; but at the start it will be necessary to keep watch of his combs as well as one's own, and perhaps handle two to his one. If anything unusual is noted it is immediately mentioned, so that the other may take it into consideration; and if both are experienced, it often proves that two heads are better than one. (2) It is our experience that with this grouping there is more

or less drifting. If bees are flying more freely from one colony than from the one next to it, returning bees from both colonies are inclined to enter with the crowd. Again, don't you think that if hive No. 13, mentioned in your *Stray Straws*, page 658, had contained a real colony, perhaps the queen of No. 14 would have been balled? Well, of course that is only a guess. But on account of the weather and various other factors, swarms do occasionally issue, even with the best of care. Now, suppose one is not right there to attend to the matter, would not a clipped queen that issued from group in Fig. 3 be more apt to be balled than one from either of the other groups? In fact, this might happen to her when she was no more than a foot from her own entrance. Now, since our own apiaries are visited but once every seven or eight days during the summer, this objection would have considerable weight with us. There is, however, another still stronger objection; and that is, the greater ease of spreading disease, especially American foul brood. We have noticed at different times that, if a colony has the disease, the nearest one facing in the same direction is apt to have it later on. It is an easy matter for bees loaded with diseased honey to enter a near hive facing in the same direction.

Question.—On page 367, June, C. L. N. Pearson speaks of his method of swarm prevention, and I wish to ask about what time the shallow super is placed underneath the brood-chamber.

Minnesota.

J. N. Nelson.

Answer.—We believe the shallow super is put underneath just before the main honey flow; but there will be no particular harm done if it is placed there even earlier than that, for of course the heat will rise to the upper part of the hive, so that having the shallow super underneath will make but little difference anyway in the temperature of the bees.

Question.—On page 293 of *Gleanings for May, 1918*, you gave a tube method of treatment of American foul brood whereby you use full sheets of foundation. Another scheme for combating this form of foul brood is to shake the bees on sealed combs of honey, after brood-rearing has ceased in the fall. Are there any objections to combining the two methods and transferring the bees from the old hive to the new one with the combs of honey by means of the tin tube and the bee-escape?

New York.

C. R. Osborne.

Answer.—Altho we have never tried the plan of shaking on to combs of sealed honey we know the plan has been tried by some. If one could be certain that the frames of combs were entirely sealed, we believe it would be safe to use this method; but there is always a chance that there may be cells here and there around the edges where the bees might possibly store a little more honey; and if any foul-brood honey is stored in the bottoms of the cells, and left there until spring, then one may be certain of a continuation of the disease. If the cells were left near the center of the hive

it would not be so bad, provided the queen had stopped laying for the season, because the honey thus placed would be used up before spring. However, queens after they have ceased laying sometimes begin again quite late, so that, altho we have never tried the plan, it does not seem quite safe to us. If you try the plan we shall be very much interested to learn the result. We ourselves intend trying the plan on a few colonies this fall. There is no reason why it could not be used in connection with the tube plan; but, since the brood would be already hatched, there would not be as much advantage in the tube treatment as earlier in the season.

Question.—Why are you or the beekeepers so anxious to get more and more new beekeepers started? It seems funny to me that in any other business the hardest thing to find out is the profits. Just try to find out the profits of the beef, steel, oil, or any other trust; or just try to get in their line of business and see how quick they will have you out again. Beekeepers must be either the most honest men on earth or the biggest fools. Or are their profits so easily made that they are so glad about it that they feel compelled to tell others?

New York.

John Buchanan.

Answer.—A great many of the good beekeepers do not tell their yearly income, from the very justifiable fear that others will move in and overstock their locality. In fact, there are a number of beekeepers who do not hesitate to give the impression that their localities are unusually poor. Please note one of our items under "Bees, Men, and Things," in the September issue. We would hardly call beekeepers the most honest men on earth nor the biggest fools; but they clearly understand the vast amounts of nectar that are yearly going to waste. They also know that only a small amount of honey is used in proportion to the amount that people could easily use to their advantage. This being the case, the beekeepers have no right greatly to fear over-production. If, therefore, they have found profit and enjoyment in beekeeping, is it not natural that they should be glad to have others also embark in the same business if they feel it can be done without overcrowding their own territory? Altho a few beekeepers are jealous of their occupation, and endeavor to keep as many as possible out of the business, yet the great majority of beekeepers will be found quite generous and friendly to the beginner.

Question.—When a colony dies, is the queen the last to die?

T. Hamilton.

Oklahoma.

Answer.—When a colony gradually dies, the bees left continue to take care of the queen as best they can, so that she is generally one of the last to perish.

Question.—Will the soil from a patch of red clover do to inoculate the ground for sweet clover?

North Carolina.

E. D. Harper.

Answer.—On referring the matter to A. I. Root he says it would not.

A BEE club of 12 boys and girls was started in Kansas in the spring of 1917 by Chas. A. Boyle, county agent, according to Capper's Farmer for September. These boys and girls then clubbed together and purchased an extracting outfit. Altho they worked with their bees independently they did the work of extracting together. Such good results were obtained that the club has now increased to a membership of 50.

* * *

In an Experimental Farm Note in the September Canadian Horticulturist and Beekeeper, sugar syrup is spoken of as a better winter food than good natural stores.

* * *

When a grocer fails he soon finds it out; but thousands of beekeepers are miserable failures and never do make the discovery. This is absolute proof, of course, that beekeeping is a branch of industry well worthy of effort; for if one can fail and still keep going it speaks well for the returns to be attained under the right management.—E. F. Phillips in American Bee Journal for September.

* * *

In an article concerning M. H. Mendleson, in the American Bee Journal for September, are the following interesting points:

"He formerly made a practice of requeening all his colonies every two years. Since he has had to contend with European foul brood he requeens every colony that does not build up quickly in spring, and never allows any queens more than two years old."

"It is his practice to leave about twice as much honey on the hives as will be needed in a favorable season."

"A special feature of the Mendleson equipment is the series of big tanks, four each holding seven tons, two eight tons, and one ten tons, providing a combined storage capacity of 54 tons. In addition to these he has several four-ton tanks."

"With a crew of six men he has extracted and filled with honey a seven-ton tank every two days during the rush of a good season."

"On one occasion, as a test, he took off, alone, and extracted 1,500 pounds of honey in half a day."

* * *

By the burning of nearly 2,000 hives affected with foul brood, as reported in the July Gleanings, Jamaica proved her real interest in beekeeping. In the annual 1919 report of the Jamaica Department of Agriculture we find the following:

"I am glad to be able to report that there is every reason to believe that foul brood has been effectively stamped out, and that

THE BEST FROM OTHERS

Iona Fowls

this prompt and drastic action has freed the honey industry of the Colony from the inroads of a most destructive disease. The Legislative Council is

to be congratulated on its action in authorizing this large expenditure at a time when general revenue was not in an easy condition for meeting extra demands for money."

* * *

Altho rearing no queens for sale, I procure the best blood obtainable from all parts of the United States, testing each one, and rearing queens and drones from the best. A high-class strain is thus assured, and has resulted in the elimination of the Isle of Wight trouble.—Gilbert Barratt, in The Bee World, July.

* * *

In an unsigned article in the American Bee Journal for September, the truth of which is vouched for by the editor of that journal, we find the following on page 304:

"At our State convention, Mr. ———, a representative from the Bureau of Entomology, gave us a lecture, the principal part of it being that they had found a new and much better way of wintering bees than was generally known. He said it had been thoroly tested, and found to be far superior to any other method. He said if the temperature of the cellar was 50 degrees, the bees were so quiet and comfortable, and in such a dormant condition, that they required very little oxygen, and wintered very much better with all ventilators closed perfectly tight than if given air. The cellar must be at that temperature when the bees were put in."

The writer of that article said that, altho he had never had his cellar as warm as that when the bees were put in, he decided to try the plan. Before doing so, however, he talked the matter over with a professor who had charge of the State University bees, and found that he, too, intended to winter in this way. He, therefore, bottled his bees up tight without ventilation in an outdoor cellar at a temperature of 50 degrees and left for another State. In February he wrote home for a report of cellar conditions, and learned that the bees were in a deplorable condition, several inches deep on the cellar bottom. A good many of the bees had detected a little better air near the door, and there were found piles of bees four to six inches deep. The uneasiness of the bees had increased the temperature to 62 degrees, and eight bushels of dead bees were on the floor. Out of 109 fine colonies he had less than 25 three-frame colonies left. The university bees also perished, altho the professor attributed their death to dysentery, and made no reference to ventilation.

THE plan of putting colonies in rows north and south, facing alternately east and west, using two-story hives, and covering the whole row with tar paper, has proved with me and others to be the easiest, cheapest, and best way to winter here and in similar climates. The most of the honey is in the upper story, and bees generally winter there. Then they have some honey in the lower story to carry up in spring that helps greatly in improving brood-rearing. Tar paper draws the heat of the sun and helps to warm up the hives and aids the bees greatly in early spring.—Daniel Danielson, Morgan County, Colo.

I note that in the August issue of Gleanings there is a quotation which might be considered an injustice to producers in this section. I refer to the price quoted for honey by a Portland firm. I believe this is the lowest quotation made anywhere, and I should like to call attention to the fact that they are not producers but distributors. As nearly as we can ascertain, no extracted honey has been sold yet by the actual producer for less than 20 cents, first-class comb honey bringing \$7.50; beeswax 35 to 38 cents. I might add that the season so far has been one of the best for many years. The weather during the white-clover season was abnormally cool, and the flow was not as heavy as we might have expected with the amount of bloom in sight. Still, bees did well; and those who are in the business of moving their colonies to the mountains have harvested tons.—E. J. Ladd, Multnomah County, Ore.

It appears that there is a new bee disease near Rochester, N. Y., and one which will not be very common for a while. Beekeepers think Mr. Wahl has overestimated the damage he has sustained. The following is clipped from a Rochester paper. "That airplanes flying from Britton Field are claiming so much of the air as to seriously hamper the diligence of his bees, is the claim of Louis Wahl, a Scottsville road farmer, who has complained of the matter to Sheriff Andrew Weidenmann. The planes, he alleged, actually destroyed bees from his apiary and also damaged his orchards. It is alleged that Wahl recently struck Deputy-Sheriff John Brasser, who has been detailed to guard the planes, when Brasser trespassed on Wahl's land. Brasser has been advised to swear out a warrant against Wahl." —John N. DeMuth, Genesee County, N. Y.

I think it should be suggested to Mr. Myers that next time he tries the honey bath he should wear a bathing suit; or possibly now he could start a health cure with a honey bath as the drawing card. Perhaps

BEES, MEN AND THINGS

(You may find it here)

it would be better to await results in his own case before building the sanatorium, for if the effect shows by building him up from a thin fellow to

strong, robust-appearing man he could, no doubt, induce many to try the cure. Why would not a honey bath be a good ad as a cure for rheumatism?—J. H. Howe, Cattaraugus County, N. Y. [For further particulars, see news item.—Editor.]

On page 444 of July Gleanings, Stancy Puerden made mention of modified milk for babies. I know of a similar case as one of my shopmates used it for his baby with good success. The baby couldn't keep the milk on its stomach without the honey. There is also another use for honey. One of my shopmates asked me a few days ago if I had some honey. He wanted me to be sure to save him some, saying that for a cold his wife takes honey and hot milk on going to bed and she would not like to be without it.—Geo. S. Schofield, Hartford County, Conn.

Bees had been doing tiptop for ten days, when in the middle of August we had a hail-storm that cut everything in its track. Corn is 75 per cent ruined; alfalfa bloom is all cut away; sweet clover the same. Roofs are ruined on my dwellinghouse, henhouse, garage, machine-shed, and granary. The heavy Aeme tin covers on the hives were dented and pounded as if a hammer had been used. Each colony lost at least a quart of bees.—J. H. Wagner, Fremont County, Colo.

It has been very dry in Maine. The honey crop is a fair average in quantity, and excellent in quality. Bees are apt to go into winter with too few young bees, as brood-rearing is being checked. I enjoy Gleanings much when not too tired to sense what I read. Let M.-A.-O. in oftener with his nonsense. It rests one when tired.—O. B. Griffin, Aroostook County, Me.

I have been wanting to tell you how much I enjoy the story by Grace Allen in Gleanings. I think it is a wonderfully fine story. I have but little time for reading stories, but this little story holds me. After the last is published I hope it will be put into book form. If so, I shall surely want a copy.—Geo. Griesenaver, Cook County, Ill.

Chardon chronicles the doom of a swarm of misguided country bees who never saw an automobile before. They mistook its radiator for a hive, and popped in while the motor was running. That was their finish.—Cleveland Press, Sept. 5.

We have about half a crop of clover here. Dry weather cut it short.—H. G. Quirin, Huron County, O.

YOU will notice, friends, that I have not yet got out of my mind the text that I used in our July number, especially that part in regard to the meditation of the heart. Our second text tells us that the crime that is just now so prevalent, especially in our great cities, originates in the "meditation" of the heart. The

question often comes up, "Which is the most important commandment? What is the worst sin that a man can commit?" The reply has frequently been, "A violation of the commandment which says, 'Thou shalt not kill.'" But I have been thinking seriously that the one which follows it, if not worse than murder, is often further reaching in its ultimate consequences. It was David who uttered the words I have quoted so much, and the words that have come to be so precious to me. I am not theologian enough to say these words were uttered in his youth; but I rather imagine they were. And yet David, whom God declared to be "a man after my own heart," committed that terrible sin of adultery first and then murder afterward to cover up his first sin. You can hardly pick up a newspaper that does not report *another* crime as the result of an unfaithful husband or an unfaithful wife. And these crimes generally, like David's crime, go on thru the generations.

A business man who was trusted, and supposed to be beyond suspicion, recently got his stenographer into trouble. To get out of the trouble a crime was committed. I do not know whether the world generally calls it murder or not; but I call it murder—the murder of a sweet, innocent babe. Just yesterday Mrs. Root called me to look at a little girl grandchild four and a half months old. I talked to this child, and she gave me a sweet little smile that seemed to me more precious than anything else here on earth. You may talk about the flowers and the sunshine and the hum of bees; yet these things can in no way compare with that pure and innocent look of



Let the words of my mouth and the meditation of my heart be acceptable in thy sight, O Lord, my strength and my redeemer.—PSALMS 19:14.

For from within, out of the heart of men, proceed evil thoughts, adulteries, fornications, murders.—MARK 7:21.

Thou shalt not covet thy neighbor's house, thou shalt not covet thy neighbor's wife, nor his man servant, nor his maidservant, nor his ox, nor his ass, nor anything that is thy neighbor's.—EXODUS 20:17.

recognition when the baby just begins to recognize her friends and the thought that she is loved.

Well, this crime of adultery sooner or later results in murder—not the murder of a full-grown man or woman who is presumed to be able to take care of herself more or less, but the murder of a helpless innocent. Some peo-

ple seem to think that if the murder is perpetrated before birth it is not murder; but I look upon it now as one of the worst and foulest of murders.

I wish you, my dear readers, would go back to the second book of Samuel and read the 11th and 12th chapters. I am afraid that David was hurt by prosperity; and, by the way, how many of us just *now* are harmed by prosperity? If there was ever any man who had no need of coveting another man's wife, that one was King David. When he was listening to the tempter, I wonder if he ever thought about that text of his in regard to the meditation of the heart. In consulting an able attorney recently in regard to things of this kind he said that when a man becomes unfaithful to his wife and to his marriage vows, he is no longer faithful to his employer nor to anybody else. He can not be trusted anywhere. He has broken one of God's most holy commands and he is likely to steal, kill, or do almost anything else. And poor innocent Uriah! Because he refused to be a party to crime, even tho it was the king who had committed the crime, he met a most foul and shameful death. May the Lord be praised that there was such a man as the prophet Nathan who had the courage to talk plainly, even to the king of the realm; and with the beautiful parable he led David to see just where he stood in the "miry clay." He said plainly, and without any circumlocution, "*Thou art the man.*"

Now, if you have become interested in the story (and I hope you have), just go on and see what David suffered—yes, and the *whole nation*—because of that foul

crime, and because he trampled under foot two of God's most sacred and holy commandments. I have been induced to write a good deal as I have because of a long letter from a poor abused and wronged woman. In that letter she writes as follows:

I want you to write in your Home department, and beg and warn all young girls against married men who really are wolves in sheep's clothing."

Just at the present time women and young girls of almost all ages are occupying business positions. They are out among men in a way they have never been before. In one sense it is all right, and I am glad to see it. I am glad to see the whole wide world is beginning to discover that women are equal to men in almost everything; and as a rule the presence of women—yes, and of girls too—in all the departments of trade and commerce, factories, etc., is proving to be a benefit. But the man who would take advantage of these circumstances, and deliberately get *too well* acquainted with the girls and women in his employ—I was going to use a harsh term, but perhaps I had better change it and say the parents and brothers and sisters of the girl had better keep on eye on him. An old saying is to the effect that "A stitch in time saves nine." Another one says, "Prevention is better than cure," but the word of God says, "He that converteth the sinner from the error of his way shall save a soul from death, and shall cover a multitude of sins."

Will you, my readers, please keep in mind that a greater "multitude of sins" follow the breaking of the command that comes right after "Thou shalt not kill" than perhaps any other crime a man may commit?

Some years ago a good friend of mine made a remark something like this: "Mr. Root, I do not want a cent of any man's money unless I have honestly earned it." I believe he spoke the truth so far as *dollars* and *cents* were concerned; but at the same time it was rumored that he was getting to be more familiar with another man's wife than he ought to have been. Just a word here about gossip. I know as well as anybody what fearful injustice is sometimes done by circulating stories with little or no foundation; but when I once said to a pastor of ours years ago, "Mr. R., do you know there is quite a little talk about Mr. —?" he replied:

"No. Mr. Root, I did not know there had been any talk about that man and another man's wife; but I feel pretty sure there *ought* to be some talk."

In surprise I said, "Why, Mr. R., you

would not encourage gossip, would you?"

"Yes, Mr. Root, I do believe in one kind of gossip. It is at times a safeguard on humanity."

Well, the man who said he did not want a cent of any man's money, not very long after I talked with him, was seen out riding with the woman in question. As I had warned him to keep far away from her, and go on the other side of the street when he saw her coming, and avoid her presence in every way possible, he gave as a reason or excuse that he overtook her as she was walking on foot quite a little way from town. I told him it would have been a thousand times better if he had turned his automobile and gone the other way when he first caught sight of her. He pleaded that her old mother was also with her; but I declared that even then, no matter what the circumstances, he should have avoided any such public exhibition. Now, this man had a bright and intelligent wife—a woman whom any man might be proud of; but what do you suppose happened? He soon disappeared, leaving a prosperous business to go to pieces, and has never been heard of since. It occurs to me now that the most solemn and sacred obligation resting on any person is his marriage ceremony—the oath given before man and before God to be true to each other, to make it their sacred and solemn business thru life till death, and to be true to each other and true to the great God above.

And a little child shall lead them.—ISAIAH 11:6.

"AWAY UP HIGH, PAPA'S BABY."

On the very day that the first copy of *Gleanings*, Vol. I, No. 1, came off the press, God sent into our home a little blue-eyed girl baby. She seemed to recognize me as a particular friend, with almost the first opening of her blue eyes; and I in turn seemed to recognize her as a "Godsend" at that particular time of my life. ("Love at first sight.") Of course, we two commenced from that moment, almost, to become acquainted. When she was able to walk fairly well, when I came home her favorite pastime was to come up to me; and while I held her baby hands so as to steady her, she would walk up my body to her perch on my shoulder; and when I used the words, "Away up high, papa's baby," she would greet me with a glad smile and shout of delight, grasp my hands, and repeat the everyday performance. I think I have told you before, that little did she, or I, dream that her childlike mission here on earth was to lift the poor *father* "away up high," compared to where he stood, when she got

that first glimpse of him, with her baby blue eyes.* A little later, when this same father was engaged in starting mission Sunday schools, especially in places where strong drink was rampant and making great havoc, she used to go with him and stand up on the stage before the school, and with babyish accents sing a little hymn that started something like this:

I am Jesus' little lamb;
Happy all day long I am.

She was so very little that sometimes she forgot and did not render the hymn correctly. On one such occasion, instead of closing with the "I am" she got it "I are;" and her roguish brother Ernest had no end of fun in saying to her during the week, "Happy all day long I are." Let me now digress a little.

Our county fair has just closed. Among the other inducements to get the people to come was a flying-machine; and passengers were to be carried up for about seven or eight minutes for the sum of \$15.00. Inasmuch as I was with the Wright brothers during their experiments, and witnessed their first successful flight in getting around to the startingplace, everybody took it for granted that I would be the first one to fly. I first refused, on the ground that I was getting to be too old; and finally, to my great astonishment, that same blue-eyed baby (of almost 50 years ago) came forward, bright and smiling, and almost as handsome in my eyes as when I first used to say "Away up high" to her. This same blue-eyed matronly woman, even tho she is the mother of a couple of fair-sized men, announced that *she* was going to fly, and, amid a crowd of expectant and admiring citizens, off she went up, if not into the clouds, she was pretty near their neighborhood. Little did I dream in the years gone by, and little did she dream, that in the years to come that same "away up high, papa's baby," would be repeated while she was away up above the earth and all things earthly.† Perhaps she will tell you about it herself. But she came home so full of enthusiasm, and the children and grandchildren and the friends at the factory urged me so much, that I finally consented.

By the way, a few months ago, in order to preserve my health I consented to an

*Some years ago we used to hear a good deal about "What is home without a mother?" Just now I would add also, "What is home without a baby?" Is it not possible that a baby in the home—yes, even a *girl* (?) baby—may "convert the sinner from the error of his way," "save a soul from death, and hide a multitude of sins"?

† "Up above the world so high,
Like a diamond in the sky."

X ray examination of my teeth. Quite a number of them were badly ulcerated at the roots and had to come out. For the first time in my life, I took an anesthetic; but I became so excited before doing so that my heart beat so wildly (at the thought of something so near death) I felt as if I could hardly stand it. As consciousness slowly gave way, I do not think it was altogether the little prayer, "Lord, help," but it was a prayer that the dear Savior should go with me side by side while I went down into oblivion. Huber stood by my side, and I remember asking to have him where I could see him as I went down to death, or at least it *seemed* to me much like it. When I came to, it seemed as if I had been gone *somewhere* for about a couple of hours; but Huber announced that it was only *four minutes*, and there lay the heap of ulcerated teeth just as the X ray showed them.

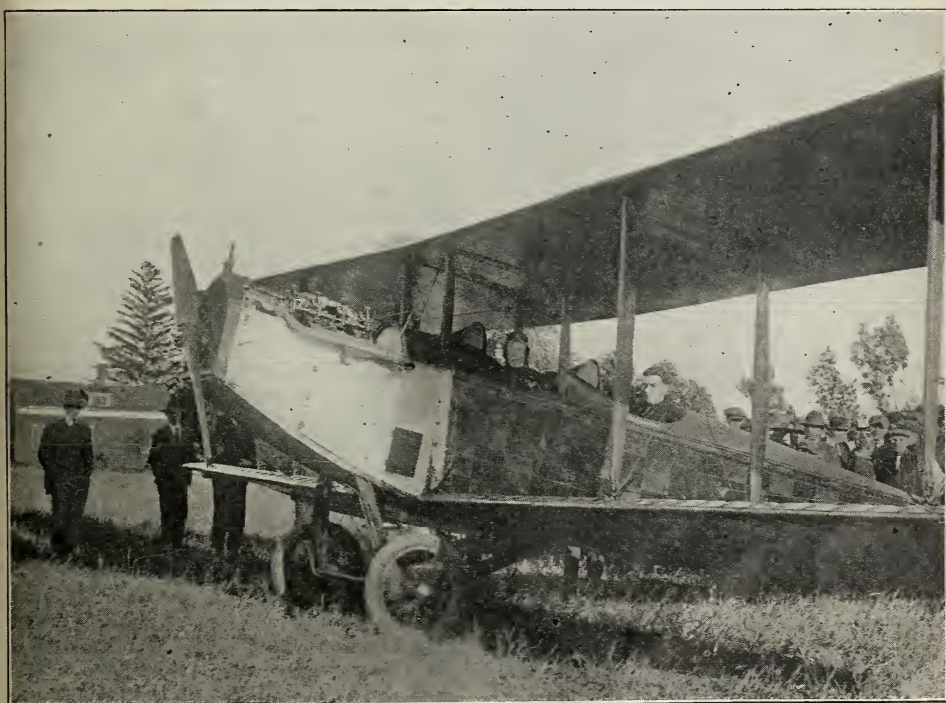
Now, I did not intend to talk dentistry right here; but so many of you want to know whether my health has improved since that "expensive" operation, I will just say that for a time I was better, and then I had my old troubles again. It has been a sort of up and down. But just now, and for the past few weeks, I have been feeling remarkably well—almost as well as I ever did in my life. Now for the flying trip:

Just before starting my heart beat almost painfully from the excitement, just as it did on this other occasion which I have been mentioning; and when the machine bumped over the rough meadow lot, uphill toward the north, I almost regretted that I had undertaken it; but when all of a sudden the beautiful machine slipped up noiselessly into the air, a wonderful thrill of thanksgiving and praise came into my heart, that it was finally my privilege to go up in a flying-machine. We have been having recent rains, and crops were looking fine. The sun was over in the west, just right to illuminate the landscape to the best advantage; and, altho I have all my life been an ardent admirer of beautiful fields and growing crops and happy homes, I never saw anything like this before. Our town of Medina seemed like a veritable paradise. Beautiful homes, well-kept lawns, abundant shade trees and shrubbery, combined to make it something brighter and more entrancing than perhaps any other view I ever had before. But as we went up higher and higher things dwindled down until the Root factory and the various offices and other buildings seemed like a chicken-yard with nicely painted coops.

A train of cars passed just under us. I looked down and said to myself, "Why, can that possibly be a *railroad*?" It seemed to me more like a string of ants following each other on a black wire and, had it not been for the smoke of the locomotive, I could hardly have been sure it was a train of cars. Not far from our factory there was a beautiful little garden, or so it seemed to me. There was an oblong or oval road going clear around in the center, with a lawn and trees in the middle. At one side of the yard was what I took to be a very pretty and artistic chicken-coop. We passed over it several times, and I was wondering how it was possible that such a

only dimly. The city of Akron, 20 miles away, was hidden by dense masses of smoke; and, altho the air seemed to be very clear, as it was just after a rain, I was unable to see in any direction more than 15 or 20 miles on account of the smoky horizon. I do not know whether this is always the case or not.

I was particularly impressed with the wonderful skill with which the machine was managed.† It responded to the lightest touch, not only as readily as any automobile, but even more so; and instead of feeling dizzy or fearful while up in the air, it occurred to me (and I still stick to it to a considerable extent), that traveling thru



In the above picture your humble servant is shown on the front seat. I wanted to wear my ordinary cap, but they said it would be blown off, and so I had to be equipped with a sort of fur-lined hood. The driver of the machine is shown just back of me. The propeller is in front. Does it not really look as if that little propeller was wholly inadequate to the task of pulling that big machine a mile a minute, or more, up in the air? No matter how it looks, the little "whirligig" certainly *did* "deliver the goods."

pretty little spot could be so near our factory, and I had never seen it. After I got down and had been inquiring about it some one said, "That was the fairground;" and what I took to be such a pretty fixed-up chicken-coop was the grand stand. I was disappointed because I could not see further away from Medina. Far off were some beautiful hills and a rocky ledge about 16 miles away. But this I could see

the air will ultimately be as safe as the automobile, and perhaps more so. When

†Since the above was dictated I am told that during the three days they were here they carried up something like 30 passengers. The machine with two passengers weighs just about a ton. By means of an aneroid barometer they decided that at one time I was up almost 1,000 feet. Furthermore, they claimed to have carried 12,000 passengers on similar trips and that they never had a mishap. If that is true, is it not likely that this new method of transit may be even safer than railroad cars, electric cars, or even automobiles?

we came down to the place of starting we whizzed thru the air at such a terrible breakneck speed it seemed there would have to be a crash of some kind when we struck the ground; but the operator tilted the machine so that the rubber wheels first just skimmed the grassy slope uphill; and the stop was quicker and easier than we stop our best railway trains, with our most expert engineers and latest improvements.

Just a word about the cost of such a trip. One reason why I objected at first was that I was afraid I might be setting a bad example before the younger ones around me. One son, two sons-in-law, three grandchildren, and several of our office girls made the trip. Perhaps they could afford to pay \$2.00 a minute for $7\frac{1}{2}$ minutes of such experience;° but the whole wide world is just now talking about the *high cost of living*. Our good President and the good men and women back of him are right in warning our people to be careful, and to be saving of their money, even if we are getting better wages than ever before, and to economize in every way. No doubt, the price of a trip will soon come down. There is going to be plenty of competition very soon. One of my grandsons said something like this:

"Grandpa, if you will buy me a flying-machine, which will cost you only \$2,000, I will take you down to Florida in about *six hours*."

I think the above is a little exaggerated, but it may soon come to pass. And, by the way, can somebody tell me something about what is being done by means of this wonderful gift from God toward helping missionaries in spreading the gospel? Is it the only thing that can at present do the work? They are talking about exploring the north pole in this way, and perhaps that is all right; but is it not of far greater importance that we should use it for following out the dear Savior's injunction. "Go ye therefore and teach all nations," and, "lo, I am with you, even unto the end of the world"?

°I suppose most of you have noticed certain birds that have the remarkable faculty and skill of being able to remain stock-still while in the air. The hummingbird in particular shows this trait. Well, when we were up at the highest point there was quite a brisk north wind, and the operator almost stopped the engine; in fact, I could see the blades of the propeller quite plainly, and then I discovered he was regulating the speed so that it would just about equal the wind; and there we were for several seconds suspended, as it seemed to me, stock-still. It may have been dropping just a little. I was afraid there was something the matter with the engine, and that we were going to drop to the ground right on top of our factory; but after he had let me see that standing still was possible when the wind was just right, the motor speeded up and we were off again.

A "SKY PILOT" AND NO MISTAKE.

After the above was dictated I found the following in the *Bible Societies' Record* for August:

SCRIPTURES BY AEROPLANE.

By Rev. A. Wesley Mell.

Dan Davison, the aviator who piloted the Bible plane, was called the world's first "sky pilot" for the Scriptures.

At 3:30 p. m. the aeroplane circled the field and flew out over the Pacific Ocean, circling higher and higher until it had reached an altitude of 4,000 feet. It then started eastward for its one-hundred-mile journey, flying over San Francisco, Berkeley, and other cities, en route. Two hundred Gospels were dropped from the skies on these cities.

THAT WONDERFUL WISCONSIN HEN.

We have several times been enjoined to be careful about saying a thing can not be done, for this is an age of accomplishing seeming impossibilities. The excitement just now is in regard to a Wisconsin hen that lays 16 eggs in one day, 77 in one week, and 151 in a month. Those of you who want full particulars should hunt up the *Literary Digest* for July 19. Aside from the story in that journal, a young beekeeper, Milan Huber, Bangor, Wis., has written us several letters from time to time in regard to this hen. I wrote him at first that hens sometimes become egg-bound and skip two and maybe three days, and then afterward lay two and possibly three eggs in the course of a few hours. Now, a clipping from one of the newspapers sent by our young friend Huber suggests that the owner of the hen, or somebody else, takes advantage of this "freaky hen," and by some sleight of hand manages to get extra eggs into the nest. From the statement submitted, however, this seems to be impossible; for we have a sworn statement from what is supposed to be a good man that he sat down in a rocking-chair and kept watch until this hen laid 13 eggs.

This is dictated on the 21st of August. Should any explanation occur before this goes into print I will try to keep our readers informed.

On page 467 of our July number I said as follows:

"It is a wonderful task for a hen to lay a fair-sized egg every day; and to do this she must have the best of feed, and have it at frequent intervals."

Now how does the above (which I believe is absolutely correct) sound when we are told (as above) this wonderful hen laid *several*?

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Amber honey in 60-lb. cans, 16c per pound. Joe C. Weaver, Cochrane, Ala.

FOR SALE.—90 cases new crop clover honey in new 60-lb. cans, two in case, 25c per lb., f. o. b. here. W. B. Crane, Ottawa, Ohio.

FOR SALE.—Well-ripened clover honey in 60-lb. cans, one or two to case. F. W. Lesser, R. D. No. 3, E. Syracuse, N. Y.

FOR SALE.—White-clover extracted honey in 60-lb. cans, 2 per case. Noah Bordner, Holgate, Ohio.

FOR SALE.—Clover, amber, and buckwheat honey in 60-lb. cans, 2 per case. H. B. Gable, Romulus, N. Y.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Derooy Taylor Co., Newark, N. Y.

FOR SALE.—Choice Michigan white clover honey in 5-lb. pails, 12 in case or 34 in barrel. David Running, Filion, Mich.

FOR SALE.—New clover and buckwheat extracted honey in 60-lb. cans, 2 cans per case. H. F. Williams, Romulus, N. Y.

FOR SALE.—Several tons of New York clover honey in new 60-lb. cans. For sample and price address John N. DeMuth, Pembroke, N. Y.

FOR SALE.—Well-ripened extracted clover honey in either ton or case lots. Chalton Fowls & Co., Oberlin, Ohio.

FOR SALE.—Finest quality extracted clover honey in new 60-lb. cans for 25c per pound. Charles Sharp, Romulus, N. Y.

FOR SALE.—Choice grades of extracted honey in new cans. Write for prices stating quantity wanted. Thos. Atkinson, Cozad, Nebr.

FOR SALE.—10,000 lbs. very fine flavor white honey in new 32-gal. oak barrels, 20c per pound f. o. b. New Smyrna, Fla. Sample 5c. A. F. Brown, 29 Cypress St., Daytona, Fla.

FOR SALE.—Choice raspberry-clover honey, "New Crop," in 60-lb. cans, 2 per case, 23c per pound. Sample 15c. Fred Telshow, Waymart, Pa.

FOR SALE.—New crop honey of a clover grade put up in 60-lb. cans, two to the case, 20c per pound, f. o. b. Mapleton. Sample, 15c. W. M. Peacock, Mapleton, Iowa.

FOR SALE.—Clover extracted honey, two 60-lb. cans to case, 25c per pound. Honey is well ripened. Cans go over-weight one to two pounds, but we charge for 60 pounds only. H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Our new crop of white-clover honey is now ready for market. It is put up in new 60-lb. tin cans, two to the case. The crop is short this season so do not be disappointed by not ordering early. Sample 25c. D. R. Townsend, Northstar, Mich.

FOR SALE.—Raspberry honey slightly mixed with goldenrod. Was all left on hives until thoroly ripened. It is thick, rich, delicious, none better; put up in 60-lb. cans. Price, \$15.00 per can. Sample by mail for 20c which may be applied on order for honey.

John Hutchinson, Lake City, Mich.

FOR SALE.—Locust Dell Honey. This celebrated table honey is now ready for delivery in 60-lb. cans and a limited number of smaller sizes. Clover, \$15.50 per 60 lbs.; \$30.00 per case of 120 lbs. net; buckwheat, \$12.50 per 60 lbs.; \$24.00 per case of 120 lbs. net.

Alfred W. Fleming, Hudson, N. Y.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently, NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey; but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many, at only 25c per pound on car here at Northstar. Kindly address, with remittance, E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Comb and extracted honey, also beeswax. Send samples. C. S. Fryer, 386 Halsey St., Portland, Ore.

WANTED.—Comb and extracted honey, car lots and less. Mail samples, quantity, and price. W. Morris, Yonkers, N. Y.

WANTED.—Small lots of off-grade honey for baking purposes. C. W. Finch, 1451 Ogden Ave., Chicago, Ills.

WANTED.—1,000 sections comb honey $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$. Send your lowest cash price and how graded. E. B. Brown, White Plains, Box No. 323, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations. M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted. Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston. M. V. Facey, Preston, Minn.

WANTED.—White clover or light extracted honey. Send sample, state how honey is put up and lowest cash price delivered at Monroe. Also buy beeswax. E. B. Rosa, Monroe, Wisc.

WANTED.—Comb and extracted honey. Send sample of extracted and quote your best wholesale price f. o. b. your station, how packed, etc., in first letter. D. A. Davis, 216 Greenwood, Birmingham, Mich.

BEEWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

BEEWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WE BUY HONEY AND BEEWAX.—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to a case. Extracted honey, quantity, how packed, and send samples. Charles Israel Bros. Co., 486 Canal St., New York, N. Y.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

SEND TODAY for samples of latest honey labels. Liberty Pub. Co., Sta. D, Box 4E, Cleveland, Ohio.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

FOR SALE.—Pan Handle beekeepers, please note that you can buy Root bee supplies "next door." Will C. Griffith & Sons, Elm Grove, W. Va.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.

R. & E. C. Porter, Lewistown, Ills.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition, at 50c per case. Buy them now for next season's honey crop. Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FOR SALE.—3,500 supers, 4 x5 sections; 3,000 of them Danzenbaker; also 4,000 shipping cases for same. All in first-class condition. L. A. Coblentz, Rigby, Idaho.

Give your bees the right kind of winter protection and winter them in our sectional winter cases, painted, ready for use.

Oscar Kazmeier, Kiel, Wisc.

FOR SALE.—Ten 10-frame Protection hives, complete, each \$3.00; 10 empty standard hives, each \$1.00; 30 plain-section supers, complete, each \$1.00. M. Ullmann, Box No. 395, Highland Park, Ill.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.

Crenshaw Bros. Seed Co., Tampa, Fla.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—Blue vine seed, or climbing milkweed (*Gonolobus laevis*) the greatest white honey plant known for black bottom land of Middle West. Far excels white clover in yield and flavor. Six pods containing innumerable seed mailed to any address upon receipt of \$1.00.

S. H. Burton, Washington, Ind.

FOR SALE.—200 new 10-frame cross style reversible bottom-boards at 50c each; 200 new 16-frame flat reversible covers made of best select white pine at 60c each; 100 new Alexander feeders for 8- or 10 frame hives at 20c each; 150 Boardman feeders without cap or jar at 12c each. All above goods are factory-made and have never been used. Write M. E. Eggers, Eau Claire, Wisc.

THE DOMESTIC BEEKEEPER is published "wholly in the interest of the honey-producer." It will help you to produce more honey, and will then help you to sell it at the best price. Our "Service Department" has saved beekeepers hundreds of dollars in purchasing supplies. Send for a sample copy and let's get acquainted. We make liberal clubbing offers. Address

The Domestic Beekeeper, Almont, Mich.

WANTS AND EXCHANGE

WANTED.—To correspond with all beekeepers in Maryland. W. Jensen, Mars Bluff, So. Car.

WANTED.—Wax press. Give particulars and price. J. B. Holloper, Queenbreeder, Rockton, Pa.

A \$60.00 new Conley post card plate camera outfit complete. Will trade for bee supplies.

F. W. Carritt, Soldier, Iowa.

Three good horses for trade for bees or supplies. Tell your story in your first letter.

Frank J. Krupka, Merrill, R. D. No. 1, Mich.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—To purchase 10 to 300 colonies of bees, box hives or otherwise.

Chas. Schilke, Matawan, R. F. D. No. 2, N. J.

WANTED.—Bees in Jumbo hives, also Jumbo frames with drawn combs.

E. A. Newman, 4205 8th St., Washington, D. C.

WANTED.—A postal-card-size camera. Must be high grade lens and shutter.

I. C. Bachtel, Lake City, Calif.

WANTED.—To buy 100 to 200 colonies of bees in good location by an experienced beekeeper. Price must be right. F. R. Smythe, 1523 Groesbeck Road, Cincinnati, Ohio.

WANTED.—50 colonies of bees in regular 10-frame hives, also BEST grade white or sweet-clover honey. Sample and price.

Geo. Herrick, 11225 Vernon Ave., Chicago, Ills.

WANTED.—Frames with at least 50 per cent of cells well filled with pollen. The frames must be reasonably straight and free from foul brood.

Griswold Greenhouse Co., Ashtabula, Ohio.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., Pearl & Walnut St., Cincinnati, O.

WANTED.—To correspond with any one who has had experience in making a first-class straw skep. We are in the market for a considerable quantity.

The A. I. Root Co., Dept. U-2, Medina, Ohio.

WANTED.—Experienced beekeeper, young man, wants to get in touch with a good partnership, share, rental, or purchase proposition for 1920 season. Pennsylvania or New York preferred. Best of references. C. C. Brinton, Christiansa, Pa.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slungum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Son, Hamilton, Illinois.

WANTED.—To buy 100 colonies of bees, more or less. Tell your story in your first letter.
Frank J. Krupka, Merrill, R. F. D. No. 1, Mich.

WANTED.—**BEESWAX.** The keen interest manifested in our new **NEARER TO NATURE** Weed Comb Foundation shows that we will use larger stocks of beeswax than ever before. We want all of your choice yellow wax for our new foundation. If you have some that is dark and off flavor, ship this to us also, as we can sell it after remelting it to a special trade which we have developed, not requiring a fine flavor or color. We are paying today 38c in cash or 40c in trade. Ship your wax today if you have a large quantity, before the advance in freight rates. Pack our wax in double sacks. Put a tag in each sack with your name and address, and number of pounds you ship. Use no paper or other packing. Boxes or barrels may be used if burlap sacks are not available; but be sure they are securely nailed so they may not be broken open in transit.

The A. I. Root Co.

REAL ESTATE

FOR SALE.—A fine Florida farm of 20 acres, good six-room house and barn. Ideal place for fruit, chickens, and bees. For particulars write
C. Mack, Mannville, R. F. D. No. 1, Fla.

FOR SALE.—My home and 17 acres of land, including 250 colonies of Italian bees fully equipped for extracted honey.

P. W. Stahlman, West Berne, N. Y.

FOR SALE.—A wonderful bargain for some northern beekeeper who wishes to locate in the South. Our business with all of our city property, consisting of our well-established honey business, dealing in beekeepers' supplies, honey cans, and bees, together with our business house, and two-story residence of 10 rooms on adjoining lot, and three cottages in yard. Right in the center of the city of Floresville. We solicit correspondence.

The Hyde Bee Co., Floresville, Texas.

FOR RENT.—My 400-acre woodland and pasture farm in Berkshire mountains of Massachusetts. Fifteen lakes within ten miles. Substantial old farm house in good repair, fitted with plumbing. Three large barns. Locality suited to dairy, bees, and small fruit. Entire product can be sold on farm at retail prices. On main tourist route thru Massachusetts. Rent can partially be paid by work developing farm. Only thoroly responsible, long-term tenant will be considered.

Arthur E. Morgan, Englewood, Ohio.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list.
Jay Smith, R. D. No. 3, Vincennes, Ind.

Well-bred bees and queens. Hives and supplies.
J. H. M. Cook, 84 Cortlandt St., New York.

Hardy Italian queens; one, \$1.00; 10, \$8.00.
W. G. Lauver, Middletown, Pa.

Golden Italian queens, untested, \$1.00 each, six for \$5.00.
E. A. Simmons, Greenville, Ala.

FOR SALE.—Sixty colonies of Italian bees in 8-frame hives.
L. Sauer, Gardiner, N. Y.

FOR SALE.—Mismated Italian queens, 50c; hybrids, 40c.
C. G. Fenn, Washington, Conn.

PHELPS' GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

THREE-BAND Italians only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each.
Allen Latham, Norwichtown, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, \$1.50; untested, \$1.00.
J. W. Sherman, Valdosta, Ga.

Leather-colored Italian queens, tested, June 1st, \$1.50, untested, \$1.25—\$13.00 a dozen.

A. W. Yates, 3 Chapman St., Hartford, Ct.

FOR SALE.—Three-banded Italian queens, untested, \$1.00; \$10 a dozen. J. A. Jones & Sons, Montgomery, Ala., R. F. D. No. 1, Box 11-A.

When it's **GOLDEN** it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00.

C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Three-banded Italian queens, untested only, one, \$1.50; six, \$3.50; dozen, \$16.00. P. C. Chadwick, 725 E. High Ave., Redlands, Calif.

FOR SALE.—Apiary of 43 colonies of bees, full equipment. Nothing needed. Write
The Farmer Apiaries, Ramer, Ala.

FOR SALE.—Golden Italian queens ready April 15; \$1.00 each; 10.00 per dozen.

W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—150 colonies of bees up to date. Best honey-producing location in the State. First-class outfit for comb and extracted honey, at reasonable price.
Wm. A. Voigt, Nyssa, Oregon.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00.
Garden City Apiaries, San Jose, Calif.

FOR SALE.—Three-band Italian queens. Untested queen, \$1.00; six, \$5.50; twelve, \$10.00. Tested queens, \$2.00 each.

Robert B. Spicer, Wharton, N. J.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are **GREAT HONEY-GATHERERS, BEAUTIFUL** and **GENTLE.** Virgins, \$1.00; mated, \$2.00.

C. W. Phelps & Son, Binghamton, N. Y.

ITALIAN QUEENS.—Northern-bred, three-banded, highest grade, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price \$1.00 each.
J. H. Haughey, Berrien Springs, Mich.

FOR SALE.—100 colonies Italian bees (hives full of young bees for winter); equipped for 250 to 300 colonies, power extractor, etc. Also 30 acres land with buildings, if wanted. Reason for selling, age and unable to work.
O. H. Townsend, Lake City, Mich.

FOR SALE.—200 colonies of bees all in first-class condition for winter, in new Woodman Protection hives. No disease. Must be sold by Nov. 1. Reason for selling, age and poor health. Write for particulars.

Bell E. Berryman, Central City, Nebr.

NORTH CAROLINA BRED Italian queens of Dr. C. C. Miller's strain of three-band Italian bees, gentle and good honey-gatherers. July 1 until Oct. 1, untested, \$1.10 each; \$1.00 per dozen; tested, \$1.60 each; select tested, \$2.25 each. Safe arrival and satisfaction guaranteed.

L. Parker, Benson, R. D. No. 2, N. C.

FOR SALE.—Queens of Moore's strain, leather-colored, three-banded Italians. I am doing my annual requeening and can furnish select tested queens one and two years old, at \$2.00 each. Also can furnish untested queens at \$1.50 each; \$8.00 for 6; \$15.00 per dozen. All orders filled promptly.

John Hutchinson, Fife Lake, R. D. No. 2, Mich.

PURE ITALIAN QUEENS, Doolittle and **Moore** choice stock, also **Goldens** that are **GOLDEN.** Every queen mated and **LAYING** before being caged. Select untested, \$1.50 each. Select tested, \$2.50. For large lots write for price. Safe arrival and satisfaction I guarantee.

J. E. Wing, 153 Schiele Ave., San Jose, Calif.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; doz. \$14.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnettts, Va.

QUEENS AND BEES.—This fall is the proper time to replace all queens two years old as well as the failing ones. Circular free. See large ad elsewhere. Nueces County Apiaries, E. B. Ault, Prop., Calallen, Texas.

HOLLOPETER'S Italian queens, \$1.00 each, while they last. We are uniting nuclei and have a lot of extra young laying queens, which we guarantee to be purely mated and as good as any we ever reared from our best stock. *A bargain.*

J. B. Hoppeter, Queenbreeder, Rockton, Pa.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed.

M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—1 to 100 colonies of Italian bees, fine strain with tested queen, in one-story 8-frame single-walled hives, full-depth, self-spaced, Hoffman frames; nearly all wired, \$10.00 each. A few colonies in 10-frame hives, \$12.00 each. All free from disease, f. o. b. here.

Wilmer Clarke, Earlville, N. Y.

FOR SALE.—90 colonies of bees, with 8-room house and half-acre lot. Bees in fine condition, nearly all Italian, well stored, no disease; 360 extracting combs, 175 comb supers. House in good condition, newly painted, electric lights. Good honey house. Must sell soon. Bee supply trade.

O. Holdren, Darlington, Mo.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.

H. G. Quirin, Bellevue, Ohio.

HELP WANTED

WANTED.—Man for comb-honey production, 12 months' work. State wages expected and experience. Sunnyside Apiaries, Fromberg, Mont.

MISCELLANEOUS.

Guinea Pigs. Young stock for sale, females, \$1.50; males, \$1.00. Pleasant Hill Caviary, 1629 E. Florida St., Springfield, Mo.

WHITE WYANDOTTES.—100 choice cockerels, free range, exhibition and trap-nested stock. Regal strain. Also 200 Barred Rock hens, pullets, and cockerels, Thompson strain.

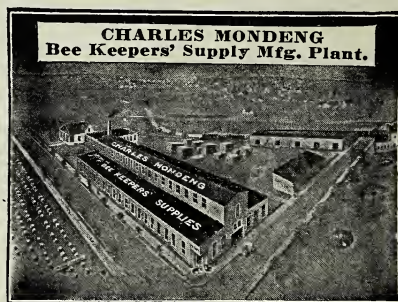
Clifton Smith, Salesville, Ohio.

FOR SALE.—1 complete set of volumes of Gleanings, from the first up to 1919. These have been the property of Geo. W. York, well-known beeman. Any one interested, write us direct.

A. I. Root Co., Dept. U-2, Medina, O.

FOR SALE.—California Wonder Corn for seed. The greatest producing corn known. The yield is twice to three times that of ordinary corn. Order now for November and December delivery. Price, 10 pounds, \$3.50. James McKee, Riverside, Calif.

\$30,000 WORTH OF Bee Supplies



All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

Will Take Beeswax in Trade at Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

Beeswax Wanted

In big and small shipments to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. - We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist

Augusta, Kansas

Established 1899

Our Food Page—Continued from page 661.

of a practical, inexpensive kitchen-table covering. Zinc is now extremely expensive and is not attractive when it gets old; aluminum is expensive and dents easily; the sanitary white enamel tops are fine but expensive, and if the table is in front of a sunny window the glare from the white top is rather objectionable. Many use table oilcloth, but this is never satisfactory for hard use. As for the bare table top of our mother's and grandmother's day, with its constant need of scrubbing, modern housekeepers will not tolerate it. Try covering your table with the ordinary printed floor linoleum, cut to fit the top and secured firmly with brads. This is very durable, sanitary, easily kept clean, and if one selects a small pattern of colors to harmonize with the rest of the kitchen it is good-looking. If it becomes marred by accident it can be replaced for a dollar or less.

Have you ever tried keeping a roll of paper toweling near your kitchen sink? It has so many uses. A sheet of it on the table beside you when you are preparing fruit or vegetables is just the thing for wiping your fingers when the telephone bell rings, as it always does when you are engaged in some work which soils your hands. A bit of clean paper toweling is preferable to a brush or rag for oiling baking pans. Cookies or drop cakes may be cooled on it instead of having one of your clean kitchen towels covered with grease spots. It is preferable to crumpled brown paper for draining doughnuts and other foods fried in deep fats. When you serve such fruits as whole peaches or apples they may be dried on a paper towel after washing. Celery or lettuce may be wrapped in it to place in the ice box. If you wish to oil your loaves of bread before covering them for the last rising, cover them with a paper towel before you put the other towel over. When you are unfortunate enough to spill cream or something equally messy on your kitchen floor, wipe it up with a paper towel before you wash it with a cloth.

Yes, I am aware that paper towels are expensive, but laundry work is even more expensive.

Now I can imagine someone saying, "Mrs. Puerden seems to overlook the modern tendency to beautify the kitchen." No, I don't; I wish every Gleanings housekeeper could have a kitchen just as dainty and pretty as any room in her house, but I do not believe anything is gained by making a kitchen masquerade as something else. It is primarily a place in which to prepare food. A kitchen, such as I have described, could be carried out with white or ivory enamel shelves and woodwork, and, with the very attractive utensils now to be obtained in the stores, would look better to a housekeeper who recognized its convenience than a kitchen where all the working equipment was hidden.

FLOUR IS HIGH

Why not live better and save money, too?

Grind your wheat into Best Whole Wheat or Graham Flour. Your doctor knows how healthy these are. Make the BEST Corn Meal, the old-fashioned sort you can't buy at any price nowadays.

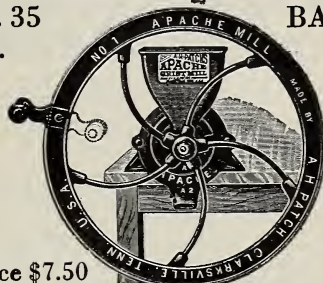
Do all sorts of fine and coarse grinding with an

APACHE MILL

Wt. 35
lbs.

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Price \$7.50

This Mill

Makes Best Corn Meal, Graham Flour, Rye Flour, Chops, Hominy, Cracks Peas, Grinds Coffee, Spices, etc. Perfect adjustment for coarse or fine work. Will send Mill prepaid by Express \$7.50

APACHE GRIST MILL—Largest capacity, fastest grinding, easiest turning handmill. Does more, lasts longer.

A. H. Patch, Inc., Clarksville, Tenn.

The Blackhawk Corn Sheller Inventor
Invented 1885

Tin Containers

A Complete Line. Your Orders Solicited for

Friction-Top Cans and
Pails

Five-gallon Square Cans
with Screw or Solder Cap

Packers' Cans
Open Top or Hole and Cap Styles

Wax Sealing Preserving
Cans

Unexcelled manufacturing and
shipping facilities.

W. W. Boyer & Co., Inc.
Baltimore, Maryland

BEEKEEPER PARTNERS

For any or all particulars, address J. T. CALVERT, Treasurer

THE A. I. ROOT CO. -- MEDINA, OHIO

We would welcome all good beekeepers as partners in this old but still fast-growing business. Our 7 per cent preferred stock offers the opportunity. Every safeguard surrounds this investment.

MOORE'S STRAIN OF ITALIANS

Noted for Honey Gathering,
Hardiness, and Gentleness

Untested queens - - - \$1.50; 6, \$8.00; 12, \$15.00

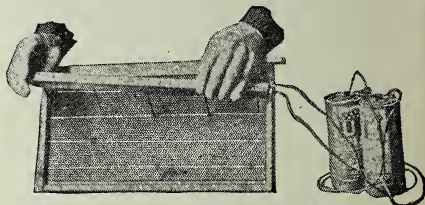
Select Untested - - - 2.00; 6, 10.00; 12, 19.00

Safe arrival and satisfaction guaranteed.

I intended to run my apiaries for honey this year; but so many of my customers say that they must have "Moore" queens, I am devoting part of my home apiary to queen-rearing.

J. P. MOORE, MORGAN, KY.

Electric Imbedder



Price without Batteries, \$1.25

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market. For sale by all bee-supply dealers.

Dadant & Sons Manufacturers Hamilton, Ills.

Ontario Bred Italian Queens

NOW IS THE TIME

TO REPLACE THOSE OLD BLACK QUEENS

with young ones of a gentle strain. Great honey gatherers and resistant to European Foul Brood.

Select Untested - \$1.25 each; \$13.00 dozen

Untested - - - \$1.00 each; \$10.00 dozen

RUMFORD & FRETZ -- -- FOREST, ONTARIO

**BANKING
BY MAIL
AT 4%**

SEND US A CHECK, Money-order, draft, or cash by registered letter for any amount which you wish to deposit with this strong old-established institution.

The money will reach us safely by mail and you can thus build up your surplus account, at 4 per cent interest, conveniently and with no trouble to yourself.

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A.T. SPITZER, Pres.
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